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Index

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CONTENTS

General conservation
Natural resources & climate 2
Soils 2
General conservation 3
Bibliographies, directories, biography, history 3
Plants
General, ecology, techniques ... 4
Wildlife
Biotas, ecology, natural history 5
Natural areas & refuges 5
Nature protection & rare & extinct species 6
Morphology, physiology, behavior, migration 6
Pollution 7
Parasites & diseases 11
Other mortality factors 11
Populations & fluctuations 12
Biometrics 12
Techniques 12
Management & research, general 13
Hunting areas & problems 13
Economic & other values 14
Predation, crop damage, control 14
Management & ecology of habitats & animals
Wetlands & wildlife 14
Farmland & wildlife 14
Rangeland & wildlife 15
Forestland
Management for & damage by wildlife 15
Mammals
General 16
Techniques 17
Faunas & manuals 17
Populations, home ranges, communities 18
Parasites & diseases 19
Shrews, moles, bats 21
Mammals
Rabbits & pikas 24
Rodents
Miscellaneous 27
Rattus & Mus 38
Sciurids 38
Beaver 41
Muskrat & nutria 41
Carnivores
Bears 42
Raccoon, ringtail, coati 43
Mustelids 43
Dogs, wolves, foxes 45
Cats 46
Big game
General 46
Deer (Odocoileus) 53
Marine 57
Other mammals 62
Birds
General 63
Techniques 64
Morphology & physiology 65
Behavior 66
Migration & banding reports 70
Manuals, faunas, communities ... 70
Populations & fluctuations 73
Economics, control, mortality .. 74
Parasites & diseases 75
Game birds--general 77
Quail 77
Pheasants 77
Grouse, partridge, etc. 78
Doves & pigeons 80
Waterfowl 81
Swans & geese 83
Shorebirds, marsh birds & their allies 85
Seabirds & their allies 87
Hawks & owls 90
Blackbirds, starlings, crows ... 92
Other birds 93
Reptiles & amphibians 95
Author index 104

Except as indicated, abstracts are by Kenneth J. Chiavetta, editor.

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NATURAL RESOURCES & CLIMATE

Smith, J. L. AN ANALYSIS OF THE ENVIRONMENTAL STABILITY OF VIRGINIA. *M.S. thesis, Va. Polytech. Inst.* 229 p. 1973. *WR 150: 2*
Courtesy/ Burd S. McGinnes.

Solman, V. E. F. CANADA'S INVENTORY OF LAND-WILDLIFE CAPABILITIES. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 354-359. 1973. *WR 150: 2*
[Dep. Environ., Ottawa, Ontario, Canada.]

SOILS

Bowman, Gilbert A., and others. SOIL SURVEY OF PHELPS COUNTY, NEBRASKA. *U.S. Dep. Agric. Soil Conserv. Serv. Soil Surv.* i + 91 p., 6 figs. + 4 pls. + single-fold maps based on aerial photos and bound in. 1973. For sale by Supt. Documents, GPO, Washington, D.C. *WR 150: 2*

Catlett, Vernon R. SOIL SURVEY OF OUACHITA COUNTY, ARKANSAS. *U.S. Dep. Agric. Soil Conserv. Serv. Soil Surv.* i + 61 p., 13 figs. + single-fold maps based on aerial photos and bound in. May 1973. For sale by Supt. Documents, GPO, Washington, D.C. *WR 150: 2*

Chamberlain, Earl, and others. SOIL SURVEY / ORGAN PIPE CACTUS NATIONAL MONUMENT / PIMA COUNTY, ARIZONA / A SPECIAL REPORT. *U.S. Dep. Agric. Soil Conserv. Serv.* ii + 37 p., 8 figs. + double-fold maps based on aerial photos and bound in. Dec. 1972. In cooperation with United States Department of the Interior National Park Service and Arizona Agricultural Experiment Station. *WR 150: 2*

Haberman, Roger Lee, and others. SOIL SURVEY OF HODGEMAN COUNTY, KANSAS. *U.S. Dep. Agric. Soil Conserv. Serv. Soil Surv.* i + 56 p., 19 figs. + single-fold maps based on aerial photos and bound in. June 1973. For sale by Supt. Documents, GPO, Washington, D.C. *WR 150: 2*

Moffatt, Hamilton H. SOIL SURVEY OF CADDO COUNTY, OKLAHOMA. *U.S. Dep. Agric. Soil Conserv. Serv. Soil Surv.* i + 70 p., 18 figs. + single-fold maps based on aerial photos and bound in. Apr. 1973. For sale by Supt. Documents, GPO, Washington, D.C. *WR 150: 2*

Reeder, Neil E., and others. SOIL SURVEY OF ASHTABULA COUNTY, OHIO. *U.S. Dep. Agric. Soil Conserv. Serv. Soil Surv.* i + 114 p., 13 figs. + single-fold maps based on aerial photos and bound in. May 1973. For sale by Supt. Documents, GPO, Washington, D.C. *WR 150: 2*

SOILS--Continued

Vieira, Frank J., and others. SOIL SURVEY OF STRAFFORD COUNTY, NEW HAMPSHIRE. *U.S. Dep. Agric. Soil Conserv. Serv. Soil Surv.* i + 96 p., 20 figs. + single-fold maps based on aerial photos and bound in. Mar. 1973. For sale by Supt. Documents, GPO, Washington, D.C. *WR 150: 3*

GENERAL CONSERVATION

Dasmann, Raymond F. NO FURTHER RETREAT--THE FIGHT TO SAVE FLORIDA. *Macmillan Co.* (New York and Toronto). xii + 244 p., illus., 5.75 x 8.5 in. 1971. Price $6.95. *WR 150: 3*

Contents: The author discusses, in a lucid, essentially accurate manner, the conservation problems in Florida--the inch that has been gained and the mile that has been lost. The principal problem in Florida is over development and all of its attendant problems. A chapter is devoted to discussion of possible methods for winning the fight for the Florida environment.--Courtesy/ Lawrence J. Blus.

Daugherty, Howard E. THE IMPACT OF MAN ON THE ZOOGEOGRAPHY OF EL SALVADOR. *Biol. Conserv.* 4(4): 273-278. July 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 3*

Elliott, Hugh F. I., editor. IUCN'S TWELFTH TECHNICAL MEETING / PAPERS AND PROCEEDINGS / BANFF, ALBERTA, CANADA / 12-15 SEPTEMBER 1972 / CONSERVATION FOR DEVELOPMENT. *IUCN Publ. New Ser.* no. 28. 383 p. 1973. Published by and obtainable at US$6.00 per copy from IUCN, 1110 Morges, Switzerland. *WR 150: 3*

Includes the following papers: *Planning for diversity*, D. J. Kuenen; *Quantity-quality relationships*, Lujo Toncic-Sorinj; *A la recherches d'une moralité nouvelle*, T. Monod; *Quality of life in different cultures*, D. P. S. Wasawo; *Development of environmental policies in a federal state*, C. de Laet; *De la prise de conscience au programme d'action*, O. Reverdin; *Concepts in development of international environmental policies*, Lynton K. Caldwell; *Environment and development: choices for the Third World*, James A. Lee; *Conservation as a long-term development tool*, A. G. Bannikov and B. N. Bogdanov; *Ecological principles and their application to economic development*, R. F. Dasmann; *The impact of the rural-urban relationship in landscape planning*, A. Ciborowski; *Economic growth: bane or blessing*, P. H. Pearse; *Partager des ressources qui s'épuisent*, P. Aguesse; *Industry's contribution to conservation*, G. Olschowy; *Le rôle du gestionnaire de l'emploi polyvalent du sol (y comprise la formation des gestionnaires)*, J.-B. Bergevin; *Managing natural resources for scientific, education and health purposes*, H. Sioli; *The need for new concepts in land evaluation*, H. O'R. Sternberg; *Conservation and development of tropical rain forest*, K. R. Miller; *Management of wetlands*, M. F. Mörzer Bruyns; *Management of polar lands*, J. K. Haysmith; *Vanishing species: habitat change and reconciling conflict*, I. McT. Cowan; *Effect of environmental disturbances, including pollution*, Peter Scott; *Harvesting of stocks: optimum production and sustained yield*, D. I. Bibikov and V. V. Dezhkin; *Conservation of the marine environment*, R. F. Dasmann; and *Conservation of estuarine regions and the coastal zone*, D. F. McMichael.

Marshall, Adrian G. CONSERVATION IN WEST MALAYSIA: THE POTENTIAL FOR INTERNATIONAL COOPERATION. *Biol. Conserv.* 5(2): 133-140, 4 figs. Apr. 1973. *WR 150: 3*

[Univ. Aberdeen, Aberdeen, Scotland.]

BIBLIOGRAPHIES, DIRECTORIES, BIOGRAPHY, HISTORY

Hickey, Joseph J. IN MEMORIAM: ARLIE WILLIAM SCHORGER. *Auk* 90(3): 664-671, 1 pl. July 1973. *WR 150: 3*

[Univ. Wis., Madison.] This is an account of the life of A. W. Schorger, perhaps best known for having authored the book, "The passenger pigeon: its natural history and extinction."--Courtesy/ Paul A. Stewart.

PLANTS--GENERAL, ECOLOGY, TECHNIQUES

Digueres, P. Des. L'ESTIMATION DU COUVERT DEUX MÉTHODES DE MESURE OPTIQUE DE LA COUVERTURE VÉGÉTALE DES SOLS. [COVERT ESTIMATION / TWO METHODS FOR OPTICAL MEASUREMENTS OF THE VEGETAL COVERS OF SOILS.] *Trans. X Int. Congr. Game Biol.* p. 69-83, [6] figs. 1973. In French with German, Russian and English summ. *WR 150: 4*

[Cent. Forestier, Nogent-sur-Vernisson, France.]

McKell, Cyrus M., James P. Blaisdell, and Joe R. Goodin, editors. WILDLAND SHRUBS--THEIR BIOLOGY AND UTILIZATION / AN INTERNATIONAL SYMPOSIUM, UTAH STATE UNIVERSITY, LOGAN, UTAH, JULY 1971. *U.S. For. Serv. General Tech. Rep. INT-1.* vi + 494 p., illus. 1972. *WR 150: 4*

Contents: Section I. CONTINENTAL ASPECTS OF SHRUB DISTRIBUTION, UTILIZATION, AND POTENTIALS. *Indian subcontinent*, K. M. M. Dakshini; *Australia*, Selwyn L. Everist; *Africa--The Mediterranean region*, H. N. Le Houérou; *Asia*, M. P. Petrov; *South America*, Alberto Soriano; and *North America*, William G. McGinnies; Section II. PRESENT AND POSSIBLE USES OF SHRUBS. *Browse and cover for wildlife*, W. Leslie Robinette; *Low-maintenance landscaping*, N. Stark; *Soil cover and stabilization*, William R. Van Dersal; *Fire relations*, Eamor C. Nord and Clive M. Countryman; *Medicinal values*, Arnold Krochmal; and *Industrial raw materials from shrubs*, Quentin Jones and A. S. Barclay; Section III. GENETIC POTENTIAL. *Evolution and diversity of arid-land shrubs*, G. Ledyard Stebbins; *Selection*, A. Perry Plummer; *Cytology and cytogenetics of shrubs*, Otto T. Solbrig; *Genetic improvement in crop species as contrasted with possibilities in shrubs*, Howard C. Stutz; and *Origins and variation in ornamental shrubs*, V. T. Stoutemyer; Section IV. SYNECOLOGY. *Salt desert shrub response to grazing use*, Ralph C. Holmgren and Selar S. Hutchings; *Special approaches to studies of competition and succession in shrub communities*, Neil E. West and Paul T. Tueller; *Some perspectives on shrub/environment interactions*, D. J. Anderson, R. A. Perry, and J. H. Leigh; *The role of shrubs in nutrient cycling*, J. L. Charley; *Shrub response to fire*, Henry A. Wright; and *Insects and diseases of shrubs on western big game ranges*, Malcolm M. Furniss and R. G. Krebill; Section V. PHYSIOLOGY OF SHRUBS. *Physiology of water stress*, T. T. Kozlowski; *Morphological and physiological plasticity in relation to drought*, G. Orshan; *Physiology of salinity stress*, J. R. Goodin and Ahmad Mozafar; *Gas exchange of shrubs*, Martyn M. Caldwell; *Carbohydrate reserves and response to use*, George A. Garrison; and *Bud activation for regrowth*, A. R. Berg and T. R. Plumb; Section VI. NUTRITIVE QUALITY. *Nutritive value of shrubs*, Donald R. Dietz; *Comparative nutritive values of forbs, grasses, and shrubs*, C. Wayne Cook; *Factors affecting nutritive values*, Henry L. Short, Robert M. Blair, and Leonard Burkart; *Physiological problems in animal use of shrubs as forage*, Lorin E. Harris; *Goat response to use of shrubs as forage*, Donald L. Huss; and *Selectivity of shrubs by various kinds of animals*, Leo B. Merrill; Section VII. REGENERATION. *Shrub seed production*, Clyde Robin; *Propagation of shrubs in the nursery*, R. G. Lohmiller and W. C. Young; *Shrub establishment on game ranges in the northwestern United States*, Dean E. Medin and Robert B. Ferguson; *Using mechanical equipment to modify the seedling environment*, Carlton H. Herbel; *Using mulches to establish woody chenopods*, H. W. Springfield; *Establishing shrubs in saline environments*, C. V. Malcolm; and *Demonstration of a new shrub seeding method*, Y. Orev; Section VIII. THE FUTURE OF SHRUBS IN ARID LANDS. *Needs and opportunities for shrub research in the western United States*, James P. Blaisdell; *The role of shrubs and shrub ecosystems in present and future Mediterranean land use*, A. Naveh; *Manipulating shrub-grass plant communities in arid zones for increased animal production*, Martín H. González; *Integration of shrub research effort*, David W. Goodall; and *Some approaches to achieving the potential of shrubs for man's use*, Thadis W. Box.

O'Regan, William G., Donald W. Seegrist, and Richard L. Hubbard. COMPUTER SIMULATION AND VEGETATION SAMPLING. *J. Wildl. Manage.* 37(2): 217-222, 5 figs. Apr. 1973. *WR 150: 4*

[Univ. Calif., Berkeley.] Abstract: This paper reports a method designed to help in developing rules for sampling vegetation more efficiently. The procedure

uses maps of plant stands, computer simulation of sampling, and standard statistical and economic theory. If the maps are representative of a larger population, the user of the method can decide the size and number of plots that will, within the limits of a fixed budget, result in the smallest expected confidence interval of the mean.

WILDLIFE--BIOTAS, ECOLOGY, NATURAL HISTORY

Burbidge, A. A., and R. I. T. Prince. THE FAUNA, FLORA AND PLANNED USAGE OF THE DAMPIER ARCHIPELAGO. *Dep. Fish. Fauna Western Australia Rep.* 11. p. 1-27, illus. 1972. [From Biol. Abstr. 56(1), 1973.] *WR 150: 5*
[Dep. Fish. Fauna, Fauna Res. Branch, Perth, Western Australia.]

Crossin, Richard S., Oscar H. Soule, Robert G. Webb, and Rollin H. Baker. BIOTIC RELATIONSHIPS IN THE CANON DEL RIO MEZQUITAL, DURANGO, MEXICO. *Southwestern Nat.* 18(2): 187-200, 5 figs. 29 June 1973. *WR 150: 5*
[Neotropical Ornithol. Foundation, Tucson, Ariz.]

Erickson, A. W., and others. POPULATIONS OF SEALS, WHALES, AND BIRDS IN THE BELLINGSHAUSEN AND AMUNDSEN SEAS. *Antarctic J.* 7(4): 70-72. July-Aug. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 5*

Medway, Lord, and D. R. Wells. DIVERSITY AND DENSITY OF BIRDS AND MAMMALS AT KUALA LOMPAT, PAHANG. *Malay. Nat. J.* 24(3/4): 238-247. 1971. [From Biol. Abstr. 56(1), 1973.] *WR 150: 5*
[Great Glemham House, Saxmundham, Suffolk, England.]

Thompson, Marvin Pete, Jr. AN ANNOTATED LIST OF THE SUMMER VERTEBRATE FAUNA OF UPPER LUSK CREEK, POPE COUNTY, ILLINOIS. *Trans. Ky. Acad. Sci.* 33(3/4): 49-56. 1972. [From Biol. Abstr. 56(4), 1973.] *WR 150: 5*
[Ky. Univ., Richmond.]

WILDLIFE--NATURAL AREAS & REFUGES

Bryan, Rorke B., and Michael C. Jansson. PERCEPTION OF WILDLIFE HAZARD IN NATIONAL PARK USE. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 281-295, 2 figs. 1973. *WR 150: 5*
[Univ. Alberta, Edmonton, Alberta, Canada.] "The survey described has indicated the existence of substantial inaccuracies in public perception of wildlife species and their behavior patterns. While wildlife perception is undoubtedly complex in origin, the survey indicates that familiarity or contact with wildlife either through residential location or recreational occupation strongly influences its accuracy. On the basis of results it appears reasonable to assume that increasing urbanization and decreasing contact with wildlife will reduce the accuracy of wildlife perception. This inaccuracy, rendered effective by public hearings, may mould park management policy in a way which is not conducive to wildlife protection."

Campbell, A. C. THE NATIONAL PARK AND RESERVE SYSTEM IN BOTSWANA. *Biol. Conserv.* 5(1): 7-14, 9 figs. Jan. 1973. *WR 150: 5*
[Dep. Wildl. & Natl. Parks, P.O. Box 131, Gaborone, Botswana.] A short history of the development of the National Parks and Game Reserves in Botswana is given. The majority of the sanctuaries are not the result of careful ecological planning but of history and circumstances at the time of their inception. Fortunately, however, the conservation areas cover all major wildlife habitats, although the need for extension of some of the National Parks and Game Reserves is of great importance to give more sophisticated protection to particular species and their habitats.--From abstr.

WILDLIFE--NATURAL AREAS & REFUGES--Continued

Fowler, Ronald K., and Richard L. Bury. VISITOR EVALUATIONS OF A DEVELOPED OUTDOOR RECREATION AREA ON A NATIONAL WILDLIFE REFUGE. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 213-219. 1973. *WR 150: 6*
[Bur. Sport Fisheries & Wildl., Waycross, Ga.] "The findings of this study indicate that various groups perceive the refuge differently; consequently, the visitor could be provided a choice of several alternative experiences."

LaBastille, Anne. EFFECTIVE TECHNIQUES FOR DEVELOPING WILDLIFE RESERVES IN LATIN AMERICAN COUNTRIES. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 89-95. 1973. *WR 150: 6*

LaBastille, Anne. ESTABLISHMENT OF A QUETZAL CLOUD-FOREST RESERVE IN GUATEMALA. *Biol. Conserv.* 5(1): 60-62, 3 figs. Jan. 1973. *WR 150: 6*
[c/o Ecology Program, Smithsonian Inst., Washington, D.C.] *"Pharomachrus mocinno mocinno* and *Oreophasis derbianus."*

Matthews, William H. III. A GUIDE TO THE NATIONAL PARKS / THEIR LANDSCAPE AND GEOLOGY. *Doubleday / Natural History Press* (Garden City, N.Y.). xx + 528 p., illus., 5.5 x 8 in. 1973. Price $5.95, paper. *WR 150: 6*
This is a single-volume paperback revision of a two-volume edition published in 1968 at $14.90. Revision consists of updating the material relating to facilities and activities of the thirty-eight national parks that are discussed. In order to reduce the size of the book and make it available at a lower cost many photographs were eliminated. However, the addition of a new section "Tips for Tourists" to each park more than compensates for this reduction and this guide book should prove invaluable to visitors to the parks.

Verschuren, Jacques. LES PARCS NATIONAUX DE LA RÉPUBLIQUE DE ZAÏRE PRÈS DE CINQUANTE ANS APRÈS LEUR CRÉATION. [THE NATIONAL PARKS OF THE REPUBLIC OF ZAIRE NEARLY FIFTY YEARS AFTER THEIR CREATION.] *Africa-Tervuren* 18(2): 50-56. 1972. [From J. Mammal. 54(1, suppl.), 1973. In French with Dutch summ.] *WR 150: 6*

WILDLIFE--NATURE PROTECTION & RARE & EXTINCT SPECIES

Burt, DeVere E. THE GEOGRAPHY OF EXTINCT AND ENDANGERED SPECIES IN THE UNITED STATES. *Explorer* 15(3): 4-10, illus. Fall 1973. *WR 150: 6*
[Cincinnati Mus. Nat. Hist., Cincinnati, Ohio.] "To summarize briefly, the major causes affecting the continued growth of the endangered species list have been identified as the biological problem of specialization, combined with the more important influence of human population growth and the attendant natural habitat destruction. Intimately related are the factors of time and public apathy."

Goodwin, Harry A. ECOLOGY AND ENDANGERED SPECIES. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 46-55. 1973. *WR 150: 6*

Silcock, Burton W., H. Curt Hammit, and John E. Crawford. ENDANGERED WILDLIFE ON THE NATIONAL RESOURCE LANDS. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 68-75. 1973. *WR 150: 6*
[Bur. Land Manage., Washington, D.C.]

WILDLIFE--MORPHOLOGY, PHYSIOLOGY, BEHAVIOR, MIGRATION

Airapet'yants, E. Sh., and A. I. Konstantinov. ECHOLOCATION IN ANIMALS. *Published for the U.S. Department of the Interior and the National Science Foundation, Washington, D.C., by the Israel Program for Scientific Translations* (Jerusalem). TT72-50012. vi + 308 p. + 88 figs. 1973. Russian original by Izdat. "Nauka" Leningrad Otdelenie, Leningrad in 1970. [Translation available from the U.S. Department of Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] *WR 150: 6*
"Ten years ago, the authors initiated Soviet research into ultrasonic echo-location in animals, and the results obtained from experiments in the intervening

period form the basis of this monograph together with a synopsis of all the data on the subject that are found in the world literature. The book gives information on various little known aspects of the life of echolocating animals and traces the path of man's discovery of their specialized means of spatial analysis. The parameters of acoustic orientation signals, the mechanisms of their emission and the reception and analysis of sound reflected from objects are described in detail and an appraisal is made of the possibilities of echolocators, with particular emphasis on bats and dolphins."

Box, Hilary O. ORGANISATION IN ANIMAL COMMUNITIES / EXPERIMENTAL AND NATURALISTIC STUDIES OF THE SOCIAL BEHAVIOUR OF ANIMALS. *Crane Russak & Co., Inc.* (New York). [vi] + 251 p., illus., 5.5 x 8.75 in. 1973. Price $2.75. *WR 150: 7*

Contents: General perspectives, Social organisation in natural communities of animals, Higher order social organisations, Experimental investigations of social behaviour, Interspecies relationships, Social behaviour and domestication, Isolation, overcrowding and natural populations, and Social communication systems.

Herrenkohl, L. R. SENSORY REGULATION OF MATERNAL BEHAVIOR IN MAMMALS. *Physiol. Behav.* 9(4): 689-692. 1972. [From Biol. Abstr. 55(12), 1973.] *WR 150: 7*

[Temple Univ., Philadelphia, Pa.]

Kavanau, J. Lee, Judith Ramos, and Roy M. Havenhill. COMPULSORY REGIME AND CONTROL OF ENVIRONMENT IN ANIMAL BEHAVIOUR. II. LIGHT LEVEL PREFERENCES OF CARNIVORES. *Behaviour* 46(3-4): 279-299, 4 figs. 1973. In English with German summ. *WR 150: 7*

[Univ. Calif., Los Angeles.] Thirteen individuals belonging to the carnivore species *Bassariscus astutus, Genetta genetta, Mustela frenata, Mustela rixosa, Tayra barbara,* and *Urocyon cinereoargenteus* were studied in activity-wheel enclosures in which they could control the intensity of ambient illumination in 10 steps by instrumental means.--From summ.

Kooyman, G. L., and others. RESPIRATORY STUDIES OF SEALS AND PENGUINS. *Antarctic J.* 7(4): 74-75. July-Aug. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 7*

Nechaev, V. A., and Yu. M. Korotkov. [TROPHIC CONNECTIONS OF BIRDS WITH AMPHIBIANS AND REPTILES IN THE PRIMOR'YE AND AMUR RIVER TERRITORIES.] *Vestn. Zool.* 6(6): 49-53. 1972. [From Biol. Abstr. 56(3), 1973. In Russian with English summ.] *WR 150: 7*

[Far East Res. Cent., Acad. Sci. USSR, Vladivostok, USSR.]

WILDLIFE--POLLUTION

Bercken, J. Van Den, L. M. A. Akkermans, and J. M. Van der Zalm. DDT-LIKE ACTION OF ALLETHRIN IN THE SENSORY NERVOUS SYSTEM OF *XENOPUS LAEVIS*. *Eur. J. Pharmacol.* 21(1): 95-106, illus. 1973. [From Biol. Abstr. 56(4), 1973.] *WR 150: 7*

[Univ. Utrecht, Utrecht, Netherlands.]

Bercken, J. Van Den, L. M. A. Akkermans, and R. G. Van Langen. THE EFFECT OF DDT AND DIELDRIN ON SKELETAL MUSCLE FIBRES. *Eur. J. Pharmacol.* 21(1): 89-94, illus. 1973. [From Biol. Abstr. 56(4), 1973.] *WR 150: 7*

[Univ. Utrecht, Utrecht, Netherlands.] *"Xenopus laevis."*

Bowman, M. C., M. M. Cole, P. H. Clark, and D. E. Weidhaas. TRICHLORFON AND DICHLORVOS: THEIR RESIDUES AND TOXICITY IN RODENT BAIT FOR FLEA CONTROL. *J. Med. Entomol.* 10(4): 405-410, 2 figs. 31 July 1973. *WR 150: 7*

[Food & Drug Administration, Jefferson, Ark.]

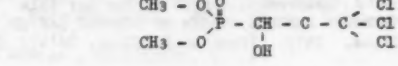
Chevtchenko, L. S. [DDT AND CHLOROPHOS INFLUENCE ON THE GREY HARE UNDER EXPERIMENTAL CONDITIONS.] *Trans. X Int. Congr. Game Biol.* p. 211-215. 1973. [In Russian with French, German, and English summ.] *WR 150: 8*
"Lepus europaeus."

Damalas, A. P. MONITORING CO_2 EVOLUTION FROM MERCURY TREATED AND NATURAL FOREST SOILS. *M.S. thesis, Va. Polytech. Inst.* xvii + 189 p. 1973. *WR 150: 8*
Courtesy/ R. H. Giles.

Faber, Raymond A., and Joseph J. Hickey. EGGSHELL THINNING, CHLORINATED HYDROCARBONS, AND MERCURY IN INLAND AQUATIC BIRD EGGS, 1969 AND 1970. *Pestic. Monit. J.* 7(1): 27-36, 1 fig. June 1973. *WR 150: 8*
[Univ. Wis., Madison.] Abstract: In the Upper Great Lakes States, 9 out of 13 species of fish-eating birds were found in 1969-70 to have sustained statistically significant decreases in eggshell thickness since 1946. Maximum changes in a thickness index occurred in great blue herons (--25%), red-breasted merganser (--23%), common mergansers (--15%), and double-crested cormorants (--15%). Heron eggs taken in Louisiana generally displayed a smaller post-'46 change than herons in the Middle West. On a lipid basis, mean PCB- and DDE-residue levels exceeded 100 ppm in 7 out of 13 species in the Great Lakes States, and in 2 of 7 species in Louisiana, the average DDE:PCB ratios in the two regions being 1.25:1 and 3.9:1 respectively. Individual dieldrin values tended to be higher in Louisiana (31.6 and 13.95 ppm in heron species from two different locations), although values reached 10.1 and 9.4 ppm in great blue and black-crowned night herons in Wisconsin. BHC averaged 3.01 and 0.39 ppm in the Lake States and Louisiana, respectively. Of eggs examined for mercury, 29% had levels greater than 0.5 ppm, and 9%, greater than 1.0 ppm on a wet-weight basis. Mercury levels in a small sample of eggs from Louisiana were consistently low. The differences in mercury levels between the two regions thus were similar to those found for the chlorinated hydrocarbons. While DDE was a prominent factor for most groups, especially herons, in relation to the eggshell thinning observed, dieldrin was also important to two groups even though DDE was present in much higher amounts. PCB's were also important to mergansers, while mercury was positively correlated with thickness index in grebes and negatively correlated in mergansers.

Franks, Edwin C. LIFE EXPECTANCIES OF FIVE PASSERINE SPECIES IN THE DDT ERA. *Am. Birds* 27(3): 571-572. June 1973. *WR 150: 8*
[Western Ill. Univ., Macomb.] A t-test using paired samples served to confirm that the life expectancy of birds hatched before the DDT era was not significantly different from the life expectancy of birds hatched within the DDT era.

Gabrachanski, P., N. Nankov, and L. Moutafov. [CLINICO-BIOLOGICAL OBSERVATIONS AND EXPERIMENTAL RESEARCHES ON THE COMMON GREY HARE TREATED WITH THE "VOTEXIT" ORGANOCHLORE PRODUCT.] *Trans. X Int. Congr. Game Biol.* p. 239-243. 1973. In Russian with French, German, and English summ. *WR 150: 8*
[Fac. Med. Veter., Sofia, Bulgaria.] Votexit =



Giban, J. LA NOTION DE RISQUE POUR LE GIBIER DANS L'EMPLOI DES PESTICIDES. [OCCURRENCE OF RISKS FOR GAME THROUGH AGRICULTURAL USE OF PESTICIDES.] *Trans. X Int. Congr. Game Biol.* p. 193-204. 1973. In French with German, Russian, and English summ. *WR 150: 8*
[Lab. Petits Vertébrés, C.N.R.Z., Jouy-en-Josas, France.]

Havet, P. EFFETS DE L'HEPTACHLORE SUR LA REPRODUCTION DE LA PERDRIX ROUGE *ALECTORIS RUFA* L. ET DE LA PERDRIX GRISE *PERDIX PERDIX* L. [HEPTACHLORINE INFLUENCE ON RED PARTRIDGE AND GREY PARTRIDGE REPRODUCTION.] *Trans. X Int. Congr. Game Biol.* p. 175-183. 1973. In French with German, Russian, and English summ. *WR 150: 8*
[Conseil Superieur de la Chasse, Ave. Wagram, Paris, France.]

Henny, Charles J., Frederick C. Schmid, Elwood M. Martin, and Larry L. Hood. TERRITORIAL BEHAVIOR, PESTICIDES, AND THE POPULATION ECOLOGY OF RED-SHOULDERED HAWKS IN CENTRAL MARYLAND, 1943-1971. *Ecology* 54(3): 545-554, 3 figs. Late Spring 1973. *WR 150: 9*

[Patuxent Wildl. Res. Cent., Laurel, Md.] Abstract: A breeding population of red-shouldered hawks *(Buteo lineatus)* along the Patuxent River in central Maryland was studied during the interval 1943-71. Numbers of breeding pairs remained unchanged or increased on the *PWRC* (Patuxent Wildlife Research Center) and an adjoining area where habitat was not altered. A reduction in breeding pairs occurred on the third study area where large portions of the habitat had been destroyed. Basic information on 74 nests was obtained and the annual number of breeding pairs on the *PWRC* ranged from a low of four to a high of nine during the study. Nesting success of this highly territorial species decreased significantly as the distance between adjacent nest sites decreased (Errington's principle of inversity). Since 1960, the recruitment rate during "high" density years was 1.34 young fledged per pair as opposed to 1.95 during "optimum" (1943 and 1947 levels) density years. The 1.95 figure compared favorably with the estimated recruitment rate necessary for maintaining a stable population and with recruitment rates observed in other locations prior to the modern pesticide era. As the observed recruitment rate during the 4 years of "optimum" density was believed adequate, it is doubtful that the relatively low pesticide levels in the eggs had a detrimental effect on the reproductive performance of the population.--Courtesy/ Paul A. Stewart.

Holden, A. V., coordinator. INTERNATIONAL COOPERATIVE STUDY OF ORGANOCHLORINE AND MERCURY RESIDUES IN WILDLIFE, 1969-71. *Pestic. Monit. J.* 7(1): 37-52. June 1973. *WR 150: 9*

[Freshwater Fisheries Lab., Pitlochry, Scotland.] A two-part collaborative study of organochlorine pesticides, polychlorinated biphenyls (PCB's), and mercury residues was carried out by 26 laboratories in 12 countries. The first part involved the analysis of three test samples containing mercury. The second part of the program required the sampling and analysis of several species of wildlife from both terrestrial and aquatic environments, including fish, shellfish, and the eggs of birds. Samples were taken in specified numbers and at specified times, from both areas considered to be free of any pesticide usage and areas known or believed to be seriously polluted. Eggshell thickness indices were also determined. The differences between residue results for samples in this second part of the study were much greater than the analytical variations estimated from the first part of the study.--From abstr.

Hovette, C. LE SATURNISME EN CAMARGUE. [LEAD POISONING (SATURNISM) IN CAMARGUE (FRANCE).] *Trans. X Int. Congr. Game Biol.* p. 425-436, [8] figs. 1973. In French with German, Russian, and English summ. *WR 150: 9*

[Stn. Biol. Tour du Valat, Le Sambuc, France.]

Lavaur, E. de, and J. Carpentier-Le Sech. RECHERCHE DES INSECTICIDES CHLORÉS DANS LES ANIMAUX SAUVAGES. [TRACING CHLORINE INSECTICIDES IN WILD ANIMALS.] *Trans. X Int. Congr. Game Biol.* p. 217-225. 1973. In French with German, Russian, and English summ. *WR 150: 9*

[Lab. Phytopharm., Route de St. Cyr, Versailles, France.]

Longcore, Jerry R., and Bernard M. Mulhern. ORGANOCHLORINE PESTICIDES AND POLYCHLORINATED BIPHENYLS IN BLACK DUCK EGGS FROM THE UNITED STATES AND CANADA--1971. *Pestic. Monit. J.* 7(1): 62-72, 1 fig. June 1973. *WR 150: 9*

[Patuxent Wildl. Res. Cent., Laurel, Md.] Abstract: Black duck *(Anas rubripes)* eggs were collected in 1971 from the Northeastern United States and Canada. All 61 eggs analyzed contained DDE residues; the mean DDE residues for States and Provinces ranged from 0.09 to 5.94 ppm on a wet-weight basis, with mean concentrations exceeding 1.0 ppm in eggs from Maine, New York, New Jersey, and Delaware. The highest DDE concentration, 14.0 ppm, was in an egg from Delaware. DDD and DDT residues averaged <0.5 ppm for each collection area. No mirex residues and only trace amounts of dieldrin and heptachlor epoxide were

detected. Of the 61 eggs, 57 contained PCB's: mean PCB residues ranged from <0.05 ppm in samples from Nova Scotia to 3.30 ppm in those from Massachusetts, with trace amounts occurring in nearly half the samples. Mean organochlorine pesticide residues appeared to be lower in the 1971 samples than in those analyzed in an earlier study in 1964. The shells from the 61 eggs were measured for thickness. Comparisons of the shell thickness of eggs collected in 1971, 1964, and prior to 1940 showed that the average thickness of shells from eggs collected in 1964 (0.321 mm) was significantly less ($P<0.01$) than that of shells of eggs collected prior to 1940 (0.348 mm) or in 1971 (0.343 mm).

Lutz-Ostertag, Y., and H. Lutz. ACTION NÉFASTE DE L'HERBICIDE 2,4 D SUR LE DÉVELOPPEMENT EMBRYONNAIRE ET LA FÉCONDITÉ DU GIBIER À PLUMES. [NEGATIVE EFFECT OF 2,4-D HERBICIDE ON THE DEVELOPMENT AND THE FECUNDITY OF THE FEATHERED GAME.] *Trans. X Int. Congr. Game Biol.* p. 205-210. 1973. In French with German, Russian, and English summ. *WR 150: 10*

[H. Lutz: 1 av. Vercingétorix, Clermont Ferrand, France.]

Martin, William E., and Paul R. Nickerson. MERCURY, LEAD, CADMIUM, AND ARSENIC RESIDUES IN STARLINGS -- 1971. *Pestic. Monit. J.* 7(1): 67-72, 1 fig. June 1973. *WR 150: 10*

[Bur. Sport Fisheries & Wildl., Twin Cities, Minn.] Abstract: Starlings *(Sturnus vulgaris)* collected in 1971 at 50 sites throughout the contiguous United States were analyzed for mercury, lead, cadmium, and arsenic residues. Except for one sample containing 0.62 ppm, mercury levels were generally well below 0.5 ppm with 76% at 0.05 ppm or less. Lead levels ranged from 0.12 to 6.6 ppm; cadmium residues ranged from "not detected" to 0.24 ppm with 72% at 0.05 ppm or less; and arsenic levels were quite low with only one sample (0.21 ppm) exceeding 0.05 ppm.

Newton, I. SUCCESS OF SPARROWHAWKS IN AN AREA OF PESTICIDE USAGE. *Bird Study* 20(1): 1-8. Mar. 1973. *WR 150: 10*

[Nature Conservancy, 12 Hope Terrace, Edinburgh, Scotland.] "This study of the breeding success of sparrowhawks in an area of pesticide usage in southern Scotland shows that, although some recovery in the population is now evident, success remains low because of a number of factors--failure to lay, egg-breakage, embryonic deaths--which have been linked with high pesticide residues."

Novakova, E., and B. Temnlova. INFLUENCE DE LA POLLUTION DE L'AIR SUR LA SYNGAMOSE DU FAISAN COMMUN. [AIR POLLUTION INFLUENCE ON PHEASANT SYNGAMOSIS.] *Trans. X Int. Congr. Game Biol.* p. 389-394. 1973. In French with German, Russian, and English summ. *WR 150: 10*

Oden, Talip. PESTISID'LERIN KUSLARA ETKISI. [THE EFFECTS OF PESTICIDES ON BIRDS.] *Bitki Koruma Bul.* 11(4): 247-270. 1971. [From Biol. Abstr. 56(2), 1973. In Turkish with English summ.] *WR 150: 10*

[Bocek Toksikol. Lab., Ankara, Turkey.] Literature on the effects of pesticides on birds are reviewed and the relationship between the use of pesticides and their effects on bird populations in Turkey is given. Populations of skylark *(Alauda arvensis)*, sparrow hawk *(Accipiter nisus)*, kestrel *(Falco tinnunculus)*, peregrine *(Falco peregrinus)*, common buzzard *(Buteo buteo)*, kite *(Milvus* sp.) and hoopoe *(Upupa epops)* were affected by the use of pesticides in Turkey. Many dead birds of these species were found in the fields treated with different kinds of pesticides.

Oliver, Michael Marvin. EFFECT OF ORGANO-PHOSPHATES AND CARBAMATES ON THE BLOOD PHYSIOLOGY OF SOUTHERN DEER. *M.S. thesis, La. State Univ.* xii + 164 p., 44 figs. Aug. 1973. *WR 150: 10*

The purpose of the study was to assess the effects of known levels of Guthion, methyl-parathion and Furadan on white-tailed deer and to compare this information with like data from field collected deer known to have been exposed to one or more of these chemicals.--From abstr.

WILDLIFE--POLLUTION--Continued

Rothstein, Stephen I. VARIATION IN THE INCIDENCE OF HATCHING FAILURE IN THE CEDAR WAXWING AND OTHER SPECIES. *Condor* 75(2): 164-169. Summer 1973. *WR 150: 11*
[Univ. Calif., Santa Barbara.] Hatching failures among cedar waxwings *(Bombycilla cedrorum)* amounted to 46.7% of eggs laid in orchards. A relationship of the high rate of failure with pesticide applications is postulated.--Courtesy/ Paul A. Stewart.

Ueckermann, E. PFLANZENSCHUTZMITTELANWENDUNG UND WILD IN NORDRHEIN-WESTFALEN. [IS THE USE OF PESTICIDES DANGEROUS FOR GAME? (A STUDY IN NORTH WESTPHALIAN RHINELAND).] *Trans. X Int. Congr. Game Biol.* p. 172-174. 1973. In German with French, Russian and English summ. *WR 150: 11*
[Forschungstelle Jagkunde & Wildlschadenverhütung, Bonn-Beuel, Germany.]

Ulfstrand, S., and A. Sodergren. ORGANOCHLORINE RESIDUES IN EAST AFRICAN BIRDS. *Ambio* 1(4): 150-151. 1972. [From Biol. Abstr. 56(1), 1973.] *WR 150: 11*
[Univ. Lund, Lund, Sweden.]

WILDLIFE--PARASITES & DISEASES

Carley, J. G., H. A. Standfast, and B. H. Kay. MULTIPLICATION OF VIRUSES ISOLATED FROM ARTHROPODS AND VERTEBRATES IN AUSTRALIA IN EXPERIMENTALLY INFECTED MOSQUITOES. *J. Med. Entomol.* 10(3): 244-249, 2 figs. 20 June 1973. *WR 150: 11*
[Queensland Inst. Med. Res., Brisbane, Australia.]

Gard, Geoff, Ian D. Marshall, and Gwendolyn M. Woodroofe. ANNUALLY RECURRENT EPIDEMIC POLYARTHRITIS AND ROSS RIVER VIRUS ACTIVITY IN A COASTAL AREA OF NEW SOUTH WALES. II. MOSQUITOES, VIRUSES, AND WILDLIFE. *Am. J. Trop. Med. Hyg.* 22(4): 551-560. July 1973. *WR 150: 11*
[Vet. Res. Stn., Glenfield, New South Wales, Australia.]

Henderson, B. E., and others. ARBOVIRUS EPIZOOTICS INVOLVING MAN, MOSQUITOES AND VERTEBRATES AT LUNYO, UGANDA 1968. *Ann. Trop. Med. Parasitol.* 66(3): 343-355 + 1 pl. Sept. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 11*

Munday, B. L., and R. H. Green. PARASITES OF TASMANIAN NATIVE AND FERAL FAUNA: II. HELMINTHS. *Rec. Queen Victoria Mus.* 44. p. 1-14. 1972. [From Biol. Abstr. 55(12), 1973.] *WR 150: 11*
[Tasmanian Dep. Agric., Mt. Pleasant Lab., Launceston, Tasmania.]

Prior, Ellen T. A STUDY OF RABIES INCIDENCE IN WESTERN VIRGINIA. *M.S. thesis, Va. Polytech. Inst.* viii + 57 p. 1969. *WR 150: 11*
Courtesy/ R. H. Giles.

White, F. H., C. F. Simpson, and L. E. Williams. ISOLATION OF *EDWARDSIELLA TARDA* FROM AQUATIC ANIMAL SPECIES AND SURFACE WATERS IN FLORIDA. *J. Wildl. Dis.* 9(3): 204-208. July 1973. *WR 150: 11*
[Univ. Fla., Gainesville.] Isolated from alligator, brown pelican, ring-billed gull, bald eagle, great blue heron, sandhill crane, common loon, and large mouth bass.

WILDLIFE--OTHER MORTALITY FACTORS

Tarburton, M. K. DEATH ON THE ROADS. *Wildl. Australia* 9(1): 8-10. Mar. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 11*

WILDLIFE--POPULATIONS & FLUCTUATIONS

Sukhodol'skaya, N. K. [SPRING FLOODING AND FAUNA.] *Vestn. Zool.* 6(4): 89. 1972. [From Biol. Abstr. 56(2), 1973. In Russian.] *WR 150: 12*
The movement of foxes, deer, martens, ermines, weasels, beaver, hares, tortoises, grass snakes, and adders from an island in the Kanevskii National Reserve, USSR, is traced during its submergence in the spring floods of 1970.

WILDLIFE--BIOMETRICS

Barndorff-Nielsen, Ole. ESTIMATION PROBLEMS IN CAPTURE-RECAPTURE ANALYSIS. *Dan. Rev. Biol.* 6(6): 3-22, illus. 1972. [From Biol. Abstr. 56(1), 1973. In English with Danish and Russian summ.] *WR 150: 12*
[Arhus Univ., Arhus, Denmark.]

WILDLIFE--TECHNIQUES

Baldwin, H. A. LONG-RANGE RADIO TRACKING OF SEA TURTLES AND POLAR BEAR: INSTRUMENTATION AND PRELIMINARY RESULTS. *NASA Sp.* 262: 19-37. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 12*

Dodge, Wendell E. BUGGING DOES PAY. *Mass. Wildl.* 24(3): 13-16, illus. May-June 1973. *WR 150: 12*
Popular account of telemetry in Massachusetts.

Hurtubia, Jaime. TROPHIC DIVERSITY MEASUREMENT IN SYMPATRIC PREDATORY SPECIES. *Ecology* 54(4): 885-890, 2 figs. Summer 1973. *WR 150: 12*
[Austral Univ. Chile, Casilla 567, Valdivia, Chile.] Abstract: It is suggested that Pielou's method (1966) of estimating the diversity of a plant community from a series of randomly placed quadrats, can be applied to measuring dietary diversity of predatory populations. Treating each stomach as a sampling unit, an equivalent of a quadrat, it is possible to calculate for the whole predatory population the trophic diversity and the average of the trophic diversity with its standard error, and obtain a satisfactory representation of the prey species. The method proposed here may serve to produce important descriptive parameters in comparative ecological studies among sympatric species. --Courtesy/ Paul A. Stewart.

Park, Arch B., Edward Berard, and Charles Croteau. THE NEW TOOL IN RESOURCE MANAGEMENT. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 360-368. 1973. *WR 150: 12*
The Earth Resources Technology Satellite (ERTS-1) provides thousands of pictures to the investigators which include wildlife and fish specialists, foresters, agriculturists, ecologists, geologists, engineers, cartographers and planners. Some of the projects are described.

Patton, David R., David W. Beaty, and Ronald H. Smith. SOLAR PANELS: AN ERERGY SOURCE FOR RADIO TRANSMITTERS ON WILDLIFE. *J. Wildl. Manage.* 37(2): 236-238, 3 figs. Apr. 1973. *WR 150: 12*
[Ariz. State Univ., Tempe.] "Filed results indicate that the present configuration of 110-C solar cells will provide adequate power for a transmitter for deer and turkey in Arizona. Such conditions as latitude, atmospheric pollution levels, and transmitter power requirements must be considered carefully when determining the number of individual cells in a solar panel for use in other geographic areas. Additional cells can be added to increase power to overcome atmospheric and latitudinal problems."

Wang, Lawrence C. H. RADIOTELEMETRIC STUDY OF HIBERNATION UNDER NATURAL AND LABORATORY CONDITIONS. *Am. J. Physiol.* 224(3): 673-677. 1973. [From Biol. Abstr. 56(3), 1973.] *WR 150: 12*
[Univ. Alberta, Edmonton, Alberta, Canada.]

WILDLIFE--MANAGEMENT & RESEARCH, GENERAL

Graf, R. L. METHODS FOR DELINEATING WILDLIFE AND OTHER ENVIRONMENTAL MANAGEMENT REGIONS. *M.S. thesis, Va. Polytech. Inst.* xii + 164 p. 1973. *WR 150: 13*
Courtesy/ R. H. Giles.

Kitchinski, A. A. GAME MANAGEMENT IN NORTH-EAST SIBERIA AND ITS CHANGING IN RECENT YEARS IN CONNECTION WITH THE DEVELOPMENT OF OTHER INDUSTRIES. *Trans. X Int. Congr. Game Biol.* p. 309-314, 1 fig. 1973. In English with French, German and Russian summ. *WR 150: 13*
[Lab. Central Protection Nature, Min. Agric., Moscow, USSR.]

Rayburn, Susan B. ANALYSES OF MAJOR FACTORS INFLUENCING DECISIONS TO ACQUIRE PUBLIC LANDS FOR WILDLIFE. *M.S. thesis, Va Polytech. Inst.* vii + 122 p. 1972. *WR 150: 13*
Courtesy/ R. H. Giles.

Smith, Ralph H. CRAB APPLES FOR WILDLIFE FOOD. *N.Y. Fish Game J.* 20(1): 1-24. Jan. 1973. *WR 150: 13*
[N.Y. State Dep. Environ. Conserv., Albany.]

Uspenskyi, S. M. [ANTHROPOGENEOUS FACTORS AND GAME IN NORTH USSR.] *Trans. X Int. Congr. Game Biol.* p. 105-109. 1973. In Russian with French, German and English summ. *WR 150: 13*
[State Univ., Moscow, USSR.]

WILDLIFE--HUNTING AREAS & PROBLEMS

Groves, David L., Charles T. Cushwa, and James S. Lindzey. A METHOD OF UTILIZING PERSONAL VALUE INFORMATION FOR ASSESSING ADMINISTRATIVE CHANGES ON PUBLIC LANDS. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 310-321. 1973. *WR 150: 13*
[Va. Polytech. Inst., Blacksburg.]

Kennedy, James J. SOME EFFECTS OF URBANIZATION ON BIG AND SMALL GAME MANAGEMENT. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 248-255. 1973. *WR 150: 13*
[Utah State Univ., Logan.]

Klein, David R. THE ETHICS OF HUNTING AND THE ANTIHUNTING MOVEMENT. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 256-267. 1973. *WR 150: 13*
[Alaska Coop. Wildl. Res. Unit, Fairbanks.]

More, Thomas A. ATTITUDES OF MASSACHUSETTS HUNTERS. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 230-234. 1973. *WR 150: 13*
[Univ. Mich., Ann Arbor.] "In conclusion, I suggest that the pleasure of hunting comes more from the *process* than from the *product*. The product (success) is necessary, however, because it supplies the logical end of the process."

Potter, Dale R., John C. Hendee, and Roger N. Clark. HUNTING SATISFACTION: GAME, GUNS, OR NATURE? *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 220-229. 1973. *WR 150: 13*
[Pacific NW Forest & Range Exp. Stn., Seattle, Wash.]

Schole, Bernhard J., Fred A. Glover, Douglas D. Sjogren, and Eugene Decker. COLORADO HUNTER BEHAVIOR, ATTITUDES, AND PHILOSOPHIES. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 242-248. 1973. *WR 150: 13*
[Colo. Coop. Wildl. Res. Unit, Fort Collins.]

Stankey, George H., Robert C. Lucas, and Robert R. Ream. RELATIONSHIPS BETWEEN HUNTING SUCCESS AND SATISFACTION. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 235-242. 1973. *WR 150: 13*
[Intermountain Forest & Range Exp. Stn., Missoula, Mont.] "The ability to produce wildlife populations for harvest in sport hunting yields important human

satisfactions that are dependent in varying degrees upon these populations. Understanding the nature of this dependence provides criteria by which issues of wildlife population production, habitat improvement and rationing might be resolved."

Thomas, Jack Ward, James C. Pack, William M. Healy, John D. Gill, and H. Reed Sanderson. TERRITORIALITY AMONG HUNTERS--THE POLICY IMPLICATIONS. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 274-280, 1 fig. 1973. *WR 150: 14*
[USDA For. Serv., Amherst, Mass.]

Wilkins, Bruce T., and Eugene C. Erickson. PRIVATE LANDS AVAILABLE FOR WILDLIFE IN CENTRAL NEW YORK. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 322-327. 1973. *WR 150: 14*
[Cornell Univ., Ithaca, N.Y.]

WILDLIFE--ECONOMIC & OTHER VALUES

Davis, Robert K., Steve H. Hanke, and Frank Mitchell. CONVENTIONAL AND UNCONVENTIONAL APPROACHES TO WILDLIFE EXPLOITATION. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 75-89. 1973. *WR 150: 14*
[Johns Hopkins Univ., Baltimore, Md.]

WILDLIFE--PREDATION, CROP DAMAGE, CONTROL

Ervin, Stephen, and Cynthia Rose. GOPHER SNAKE PREDATION ON THE COMMON BUSHTIT. *Auk* 90(3): 682-683. July 1973. *WR 150: 14*
[Univ. Calif., Santa Barbara.] A gopher snake *(Pituophis melanoleucus)* entered the nest of a common bushtit *(Psaltriparus minimus)* and ate the 11- to 12-day-old young.--Courtesy/ Paul A. Stewart.

Hammer, Donald A. ECOLOGICAL RELATIONS OF WATERFOWL AND SNAPPING TURTLE POPULATIONS. *Ph.D. thesis, Utah State Univ.* 81 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(1), 1973.] *WR 150: 14*

Tigner, James R. GOLDEN EAGLE PREDATION ON A PRONGHORN FAWN. *Southwestern Nat.* 18(3): 346-348. 5 Oct. 1973. *WR 150: 14*
[Denver Wildl. Res. Cent., Denver, Colo.]

WETLANDS & WILDLIFE

Golet, Francis Charles. CLASSIFICATION AND EVALUATION OF FRESHWATER WETLANDS AS WILDLIFE HABITAT IN THE GLACIATED NORTHEAST. *Ph.D. thesis, Univ. Mass.* 235 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 33(12), 1973.] *WR 150: 14*

FARMLAND & WILDLIFE

Gindre, R., and Y. Allion. LE PETIT GIBIER DE PLAINE DANS UN SECTEUR DU GÂTINAIS-EST / CONTRIBUTION À L'ESTIMATION DES POTENTIALITÉS DE SON HABITAT. [SMALL FIELD GAME IN THE EAST-GATINAIS SECTOR / FIRST DATA ON HABITAT AND POPULATIONS.] *Trans. X Int. Congr. Game Biol.* p. 53-67, 4 figs. 1973. In French with German, Russian and English summ. *WR 150: 14*
[Cent. Tech. Forestier, Nogent-sur-Vernisson, France.]

Hamelin, J. ETUDE D'UNE CHASSE DE L'YONNE AU COURS DES ANNÉES 1958 À 1970. [STUDY ON HUNTING AND AGRICULTURE RELATIONS.] *Trans. X Int. Congr. Game Biol.* p. 185-192, [1 fig.]. 1973. In French with German, Russian and English summ. *WR 150: 14*
[46 Rue du Temple, Auxerre, France.]

RANGELAND & WILDLIFE

Denney, Richard N. RELATIONSHIPS OF WILDLIFE TO LIVESTOCK ON SOME DEVELOPED RANCHES ON THE LAIKIPIA PLATEAU, KENYA. *J. Range Manage.* 25(6): 415-425, illus. 1972. [From Biol. Abstr. 55(11), 1973.] *WR 150: 15*
[Am. Hum. Assoc., P.O. Box 1266, Denver, Colo.]

Gunnell, Frank, and Allen G. Smith. POTHOLE COMMUNITY MANAGEMENT FOR LIVESTOCK AND WILDLIFE IN THE INTERMOUNTAIN REGION. *J. Range Manage.* 25(3): 237-240, illus. 1972. [From Biol. Abstr. 55(11), 1973.] *WR 150: 15*
[Cache Natl. Forest, Logan, Utah.]

FORESTLAND--MANAGEMENT FOR & DAMAGE BY WILDLIFE

Formosov, A. N. [WOOD-SKIRTS OF THE SPARSE STEPPE WOODLANDS AS A FACTOR OF GAME WILDLIFE IN EUROPEAN SOVIET RUSSIA.] *Trans. X Int. Congr. Game Biol.* p. 119-123. 1973. In Russian with French, German and English summ. *WR 150: 15*
[Inst. Geogr., Acad. Sci. USSR, Moscow, USSR.]

Grakov, N. N. [INFLUENCE OF FORESTRY LOGGING ON THE FOREST MARTEN AND THE SQUIRREL.] *Trans. X Int. Congr. Game Biol.* p. 277-283. 1973. In Russian with French, German and English summ. *WR 150: 15*
[Inst. Res. Sci. USSR, Kirov, USSR.] *"Martes martes* and *Sciurus vulgaris."*

Komarek, E. V., Sr., chairman. PROCEEDINGS ANNUAL TALL TIMBERS FIRE ECOLOGY CONFERENCE / NUMBER 12 / 8-9 JUNE 1972 / LUBBOCK, TEXAS. *Tall Timbers Res. Stn.* (Tallahassee, Fla.). 492 p., illus. 1973. *WR 150: 15*
Includes the following papers: *Fire science at Texas Tech*, Sam E. Curl; *Effects of fire on true prairie grasslands*, E. F. Smith and C. E. Owensby; *The use of fire as a management tool on the Curtis Prairie*, Roger C. Anderson; *Fire in the Black Hills forest-grass ecotone*, F. Robert Gartner and Wesley W. Thompson; *Fire ecology in ponderosa pine-grassland*, Harold H. Biswell; *Burning and the grasslands in California*, Harold F. Heady; *Fire effects in southwestern semidesert grass-shrub communities*, Dwight R. Cable; *Effect of fire on shortgrass and mixed prairie species*, J. L. Launchbaugh; *Fire as a tool to manage tobosa grasslands*, Henry A. Wright; *A progress report on techniques to broadcast burn dozed juniper*, Henry A. Wright, Carlton M. Britton, Robert L. Wink, and Bob Beckham; *Fire in the southeastern grasslands*, Richard J. Vogl; *Plant succession on burned areas in Okefenokee Swamp following the fires of 1954 and 1955*, Eugene Cypert; *Ancient fires*, E. V. Komarek, Sr.; *Effects of fire on a Sand Hills grassland environment*, Carl W. Wolfe; *Prescribed burning and grazing for prairie chicken habitat manipulation in the Texas Coastal Prairie*, Albert D. Chamrad and J. D. Dodd; *Role of fire in mourning dove nesting ecology*, Edward C. Soutier and Eric G. Bolen; *Prairie fires and wildlife*, Leo M. Kirsch and Arnold D. Kruse; *The habitat requirements of sage grouse and the role of fire in management*, Donald A. Klebenow; *Prescribed burning in grassland management for prairie chickens in Illinois*, Ronald L. Westemeirer; *Fire in the national parks symposium*, W. H. Hendrickson; *Impact of prescribed burning on a sequoia-mixed conifer forest*, Bruce M. Kilgore; *A prescribed burning program for Sequoia and Kings Canyon National Parks*, Peter H. Schuft; *Restoring fire to the environment in Sequoia and Kings Canyon National Parks*, John S. McLaughlin; *Control burn activities in Everglades National Park*, Richard W. Klukas; *Effect of fire on vegetation of the Chihuahuan Desert region*, Walter H. Kittams; and *Fire ecology in Shenandoah National Park*, Gene Wilhelm.

Kouznietzov, B. A. [INFLUENCE OF RURAL ECONOMY AND FORESTRY LOGGING ON PROPAGATION OF GAME WILDLIFE IN USSR.] *Trans. X Int. Congr. Game Biol.* p. 97-103. 1973. In Russian with French, German and English summ. *WR 150: 15*
[Acad. Agric., Moscow, USSR.]

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Sims, H. Percy, and Charles H. Buckner. THE EFFECT OF CLEAR CUTTING AND BURNING OF *PINUS BANKSIANA* FORESTS ON THE POPULATIONS OF SMALL MAMMALS IN SOUTHEASTERN MANITOBA. *Am. Midl. Nat.* 90(1): 228-231. July 1973. *WR 150: 16*
[Canadian Forestry Serv., Edmonton, Alberta, Canada.] Abstract: Although the total population of small mammals was lower immediately after burning, the rapid reestablishment and large population (84% of total catch on burn areas) of *P. maniculatus* represent a hazard to direct seeding on jack pine sites in southeastern Manitoba.

MAMMALS--GENERAL

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[Tyumen Pedagog. Inst., Tyumen, USSR.]

Fabri, K. E., and N. N. Meshkova. [A COMPARATIVE ETIOLOGICAL STUDY OF THE DEVELOPMENT OF NON-LOCOMOTOR FORMS OF ACTIVITY IN FOX AND BADGER.] *Zool. Zh.* 51 (4): 565-575. 1972. [From J. Mammal. 54(1, suppl.), 1973. In Russian with English summ.] *WR 150: 16*

Gold, Albert. ENERGY EXPENDITURE IN ANIMAL LOCOMOTION. *Science* 181(4096): 275-276. 20 July 1973. *WR 150: 16*
[Rockefeller Univ., New York, N.Y.] Abstract: A wide variety of data on the energy expended by animals in running, flying, or swimming can be accounted for by the simple hypothesis that all animals require the same quantity of energy to carry a unit of their own body mass one "step." For running locomotion this is approximately 3×10^{-4} calorie per gram per step.

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[Moscow State Univ., Moscow, USSR.]

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Taylor, C. Richard, and V. J. Rowntree. RUNNING ON TWO OR ON FOUR LEGS: WHICH CONSUMES MORE ENERGY? *Science* 179(4069): 186-187, 2 figs. 13 Jan. 1973. *WR 150: 16*
[Harvard Univ., Cambridge, Mass.] Abstract: Disagreement exists over whether man's bipedal form of locomotion evolved as an economical means for covering long distances. There is also some disagreement about the energetic price man had to pay to free his hands. In an investigation of the relative energetic cost of bipedal and quadrupedal locomotion in primates, chimpanzees *(Pan troglodytes)* and capuchin monkeys *(Cebus capucinus)* were trained to run on a treadmill

either on two or on four legs while their oxygen consumption was being measured. Both primates expend the same amount of energy whether running on two or on four legs. The relative energy cost of bipedal versus quadrupedal running should not be used in arguments about the evolution of bipedal locomotion in man.

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[Inst. Zool. Parasitol., Acad. Sci. Uzb. SSR, Tashkent, USSR.]

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[Dartmouth Med. School, Hanover, N.H.]

MAMMALS--TECHNIQUES

Coetzee, C. G. THE IDENTIFICATION OF SOUTHERN AFRICAN SMALL MAMMAL REMAINS IN OWL PELLETS. *Cimbebasia Ser. A Nat. Hist.* 2(4): 53-62, illus. 1972. [From Biol. Abstr. 55(12), 1973.] *WR 150: 17*
[State Mus., Windhoek, South-West Africa.]

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[Inst. For. Zool., Skoghogsk., Stockholm, Sweden.]

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[Agric. Res. Cent., Tikkurila, Finland.] Abstract: The depredation of conifer (spruce) seed by small mammals was studied by labelling the exposed seeds with radioactive phosphorus (P 32). Depredators were found in all four small mammal species, *Microtus agrestis* (L.), *Clethrionomys glareolus* (Schreb.), *Apodemus flavicollis* (Melch.) and *Sorex araneus* L., caught during subsequent live trapping in the area of treatment. The immediate response of small mammals to the exposed bait was considered an indication of the high pressure exerted by these animals on artificial seeding programs.

Orbanyi, Ivan. KISERLETEK NEHANY EMLOSFAJ IMMOBILIZALASARA. [EXPERIMENTS FOR THE IMMOBILIZATION OF SOME MAMMAL SPECIES.] *Allattani Kozl.* 59(1-4): 111-117. 1972. [From Biol. Abstr. 56(1), 1973. In Hungarian with English summ.] *WR 150: 17*
[Budapest, Hungary.]

MAMMALS--FAUNAS & MANUALS

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[British Mus. (Nat. Hist.), London, England.]

Engels, Horst. KLEINSAEUGER AUS PORTUGAL. [SMALL MAMMALS FROM PORTUGAL.] *Bonn. Zool. Beitr.* 23(2): 79-86, illus. 1972. [From Biol. Abstr. 55(12), 1973. In German with English summ.] *WR 150: 17*
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Handley, Charles O., Jr. APPALACHIAN MAMMALIAN GEOGRAPHY--RECENT EPOCH. DISTRIB. HIST. BIOTA SOUTHERN APPALACHIANS, PART III: VERTEBRATES. *Va. Polytech. Inst. State Univ. Res. Div. Monogr.* 4: 263-303. Dec. 1971. [From J. Mammal. 54 (1, suppl.), 1973.] *WR 150: 18*

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A total of 55 spp. are dealt with under subheads in regard to subspecies, measurements, status, habitat and reproduction, followed by general remarks.--From abstr.

Torcea, S., and O. Petrache. NOUVELLES DONNEES CONCERNANT LA FAUNE DE MAMMIFERES DE LA PLAINE D'OLTENIE. [NEW DATA ON THE MAMMAL FAUNA OF THE OLTENIAN PLAIN.] *Trav. Mus. Hist. Nat. Grigore Antipa* 12: 419-425. 1972. [From Biol. Abstr. 55(12), 1973. In French with Romanian, Russian and English summ.] *WR 150: 18*
[Mus. Hist. Nat. "Grigore Antipa", Bucharest, Romania.]

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[Univ. Mo., Saint Louis.] Fifteen and 16 spp. occurred in two Alaskan habitats, 31-35 spp. occurred in three forest habitats in the eastern United States,

and 70 spp. occurred in two Panamanian forests. Latitudinal differences in the numbers of mammals result chiefly from differences in numbers of bats. The greater variety and availability of fruits and insects appears to account for the diversity of mammals in the tropics.--From abstr. Courtesy/ Paul A. Stewart.

Fooden, Jack. RIFTING AND DRIFT OF AUSTRALIA AND THE MIGRATION OF MAMMALS. *Science* 180(4087): 759-761, 1 fig. 18 May 1973. *WR 150: 19*
[Univ. Adelaide, Adelaide, South Australia.]

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Pruitt, William O., Jr. SYNCHRONOUS FLUCTUATIONS IN SMALL MAMMAL BIOMASS ON BOTH SIDES OF A MAJOR ZOOGEOGRAPHIC BARRIER. *Aquilo Ser. Zool.* 13: 40-44, 1 fig. 1972. In English with Russian summ. *WR 150: 19*
[Univ. Manitoba, Winnipeg, Manitoba, Canada.] Abstract: Systematic plot trapping over a six-year period revealed a synchronous fluctuation in small mammal biomass on sampling plots that were situated on both sides of the Strait of Belle Isle, a major barrier to mammalian gene flow.

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[Rockefeller Univ., New York, N.Y.] Abstract: Between 1964 and 1971 the population of vervet monkeys in the Amboseli Reserve, Kenya, has declined 33.3%. There were significantly fewer young juveniles (0.5-1.5 years) in 1971 than in 1963-1964. The same birth season was adhered to in 1971 as in 1963-1964.--Courtesy/ Paul A. Stewart.

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[Inst. Biol. Acad. Sci. USSR, Novosibirsk, USSR.]

MAMMALS--PARASITES & DISEASES

Blagoveshtchensky, D. I. [MALLOPHAGA AND SIPHUNCULATA FROM SOME MAMMALS ON CHINA AND VIET-NAM.] *Entomol. Obozr.* 51(2): 304-315. 1972. [From J. Mammal. 54(1, suppl.), 1973. In Russian with English summ.] *WR 150: 19*

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[Univ. Del., Newark.]

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[Univ. Calif., Berkeley.]

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[Univ. Northern Iowa, Cedar Falls.] Fifty-two spp. of fleas were collected from 37 spp. of mammals, from nests and burrows west of the Rio Grande in and near the Jemez Mts., New Mexico, from November 1969 to August 1971.--From abstr.

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[Gorgas Memorial Lab., Apartado 6991, Panama, Panama.]

Hunkeler, Pierre. LES CESTODES PARASITES DES PETITS MAMMIFÈRES (RONGEURS ET INSECTIVORES) DE CÔTE-D'IVOIRE ET DE HAUTE-VOLTA (NOTE PRÉLIMINAIRE). [THE PARASITIC CESTODES OF SMALL MAMMALS (RODENTS AND INSECTIVORES) OF IVORY COAST AND UPPER VOLTA. (PRELIMINARY NOTE).] *Bull. Soc. Neuchateloise Sci. Nat.* 95: 121-132. 1972. [From J. Mammal. 54(1, suppl.), 1973. In French.] *WR 150: 20*

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[Tex. Tech Univ. School Med., Lubbock.]

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[Memorial Univ., St. John's, Newfoundland, Canada.] Abstract: Fifty helminth species were found in 17 species of mammals from insular Newfoundland (three

trematodes, 12 cestodes, 34 nematodes and one acanthocephalan). Thirty-four species were recorded for the first time in mammals from Newfoundland, while one, *Anophryocephalus anophrys* Baylis, 1922, from *Pagophilus groenlandicus* was a new host record. *Plagiorchis massino* Petrov and Tikhonov, 1927, previously reported from red fox in Alaska, was found in a new North American host, the domestic cat.

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[Komeského, Kosice, Czechoslovakia.]

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SHREWS, MOLES, BATS

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[A. A. Zhdanov Leningrad State Univ., Leningrad, USSR.] *"Myotis oxygnathus* and *Pipistrellus pipistrellus."*

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[11017 Strathmore, Los Angeles, Calif.]

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[Government Pest Infestation Lab., Lyngby, Denmark.] Abstract: The techniques applied by mice when opening hazelnuts are described with particular reference to the distinction between the field mouse-type and the bank vole-type. Observations in an orchard with hazel revealed that the gnaw-marks produced by water voles belong to the field mouse-type, and the holes were almost invariably made from the side of the nut. The vole hoards nuts for winter-supply, and the burrows are cleared of old empty nuts the subsequent autumn, when new nuts are collected. The old shells are placed in heaps outside the holes.

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Pocket gophers *(Thomomys* spp.) have an important effect on reforestation in the Pacific Northwest through damage to conifer reproduction. Damage is most serious east of the Cascade Range in Washington and Oregon, and northeastern California. Damage also has been reported in northern Idaho. The purpose of this report is to review pocket gopher problems in the Northwest, summarize present knowledge of gopher biology, outline current control methods, and suggest future research needs.--From abstr.

Bindra, O. S., and G. S. Mann. STUDIES ON THE ANALYSIS OF RODENT POPULATION AROUND LUDHIANA. *Indian Sci. Congr. Proc.* 59(3): 401. 1972. [From J. Mammal. 54(1, suppl.), 1973. Abstract only.] *WR 150: 28*

Blaustein, Andrew R. NOTES ON THE BEHAVIOR OF THE DARK KANGAROO MOUSE, *MICRODIPODOPS MEGACEPHALUS* MERRIAM (RODENTIA, HETEROMYIDAE). *Biol. Soc. Nev. Occas. Pap.* 33. p. 1-2. 1972. [From Biol. Abstr. 56(1), 1973.] *WR 150: 28*
[Univ. Nev., Reno.]

Boikova, F. N., and V. N. Boikov. [DYNAMIC CHANGES IN BODY WEIGHT AND MAIN MORPHO-PHYSIOLOGICAL INDICES OF *CLETHRIONOMYS RUTILUS* DURING FALL-WINTER PERIOD IN THE SUBARCTIC.] *Ekologiya* 3(2): 44-51. 1972. [From Biol. Abstr. 56(2), 1973. In Russian.] *WR 150: 28*

Bowers, James Hoyt. EVOLUTIONARY AND GENETIC STUDIES OF SELECTED POPULATIONS OF DEER MICE *(PEROMYSCUS MANICULATUS)* AND BLACK EARED MICE *(P. MELANOTIS).* *Ph.D. thesis, Tex. Tech Univ.* 97 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(4), 1973.] *WR 150: 28*

Brander, Robert B. LIFE-HISTORY NOTES ON THE PORCUPINE IN A HARDWOOD-HEMLOCK FOREST IN UPPER MICHIGAN. *Mich. Acad.* 5(4): 425-433. Spring 1973. *WR 150: 28*
[North Central Forest Exp. Stn., St. Paul, Minn.] Abstract: The sex ratio in a sample of 70 adults was 1 male per 1.9 females. There were 0.25 young per adult female, a fertility significantly lower than the possible 1.0. Population estimates in three study areas were 43, 32, and 24 per square mile. Summer feeding was restricted to leaves of deciduous trees; preferred winter food was hemlock. Winter dens were either standing trees or logs.

Breyen, L. J., W. G. Bradley, and M. K. Yousef. PHYSIOLOGICAL AND ECOLOGICAL STUDIES ON THE CHISEL-TOOTHED KANGAROO RAT, *DIPODOMYS MICROPS. Comp. Biochem. Physiol. A Comp. Physiol.* 44(2): 543-555, illus. 1973. [From Biol. Abstr. 56 (4), 1973.] *WR 150: 28*
[Univ. Nev., Las Vegas.]

Brown, James H. SPECIES DIVERSITY OF SEED-EATING DESERT RODENTS IN SAND DUNE HABITATS. *Ecology* 54(4): 775-787, 4 figs. Summer 1973. *WR 150: 28*
[Univ. Utah, Salt Lake City.] The number of species of granivorous rodents varied from one to five on sand dunes similar in appearance and in the form and spacing of vegetation. Differences in size of coexisting species was inversely related to the number of species present. A common pool of species had equal opportunity to colonize 13 of the 18 dunes examined; differences in species among the 18 dunes can be attributed to ecological, biogeographic, and evolutionary processes.--Courtesy/ Paul A. Stewart.

Brown, James H., and Gerald A. Lieberman. RESOURCE UTILIZATION AND COEXISTENCE OF SEED-EATING DESERT RODENTS IN SAND DUNE HABITATS. *Ecology* 54(4): 788-797, 6 figs. Summer 1973. *WR 150: 28*
[Univ. Utah, Salt Lake City.] Rodents harvested seeds of sizes positively related to sizes of the rodents and foraged in different areas relative to the shrub cover. Total overlap between species in resource utilization indicates

that competition for seeds has an important influence on community structure in desert rodents. In productive habitats species that are similar in resource utilization are able to coexist, but in less productive habitats ecologically similar species are excluded, resulting in decreased species diversity.--Courtesy/ Paul A. Stewart.

Brtek, Lubomire. POZNAMKY K VYSKYTU MYSOVKY VRCHOVSKEJ *(SICISTA BETULINA* (PALLAS, 1779)*)* NA SLOVENSKU. [OBSERVATIONS ON THE GEOGRAPHIC DISTRIBUTION OF *SICISTA BETULINA* (PALLAS, 1779) IN SLOVAKIA.] *Zb. Slov. Nar. Muz. Prir. Vedy* 16 (2): 203-205, illus. 1970. [From Biol. Abstr. 55(12), 1973. In Slovak with German summ.] *WR 150: 29*
[Katedra Syst. Zool. Ekol. Zivocichov, Moskovska 2, Bratislava, Czechoslovakia.]

Bujalska, Gabriela, and Ewa Rajska. OBSERWACJE GNIAZD NORNICY RUDEJ I MYSZY WIELKOOKIEJ LESNEJ W WARUNKACH NATURALNYCH. [OBSERVATIONS ON NESTS OF *CLETHRIONOMYS GLAREOLUS* (SCHREBER), AND *APODEMUS FLAVICOLLIS* (MELCHIOR) UNDER NATURAL CONDITIONS.] *Przegl. Zool.* 16(2): 227-230, illus. 1972. [From Biol. Abstr. 56 (3), 1973. In Polish with English summ.] *WR 150: 29*
[Inst. Ekol., Pol. Akad. Nauk., Dziekanowie/Warsaw, Poland.]

De Kock, L. L., and I. Rohn. INTRA-SPECIFIC BEHAVIOUR DURING THE UP-SWING OF GROUPS OF NORWAY LEMMINGS, KEPT UNDER SEMI-NATURAL CONDITIONS. *Z. Tierpsychol.* 30(4): 405-415. Apr. 1972. [From J. Mammal. 54(1, suppl.), 1973. In English with German summ.] *WR 150: 29*

Dieterich, Robert A., Peter R. Morrison, and Diane J. Preston. COMPARATIVE ORGAN WEIGHTS FOR 8 STANDARDIZED WILD RODENT SPECIES. *Lab. Anim. Sci.* 23(4): 575-581. Aug. 1973. *WR 150: 29*
[Univ. Alaska, Fairbanks.] Organ weights were measured for 8 wild rodent species maintained under standard conditions in captivity as breeding colonies *(Microtus oeconomus, Microtus pennsylvanicus tananaensis, Dicrostonyx groenlandicus, Clethrionomys rutilus dawsoni, Peromyscus maniculatus bairdii, Calomys ducilla, Calomys callosus, Acomys cahirinus).*--From abstr.

Dmitriev, P. P., and T. U. Khamdamova. [CHEMICAL METHOD FOR STUDYING MOBILITY IN RODENTS.] *Zool. Zh.* 51(6): 899-903, illus. 1972. [From Biol. Abstr. 56(1), 1973. In Russian with English summ.] *WR 150: 29*
[Moscow State Univ., Moscow, USSR.]

Erdakov, L. N. [QUANTITATIVE CHARACTERISTICS OF DAILY STEREOTYPES OF BEHAVIOR OF WATER RAT *(ARVICOLA TERRESTRIS* L.*)* AND HAMSTER *(CRICETUS CRICETUS* L.*).*] *Isv. Sib. Otd. Akad. Nauk SSSR Ser. Biol. Med. Nauk* 2. p. 75-81. 1972. [From Biol. Abstr. 56(1), 1973. In Russian with English summ.] *WR 150: 29*
[Biol. Inst., Acad. Sci. USSR, Novosibirsk, USSR.]

Erkinaro, Eino. SEASONAL CHANGES IN THE PHASE POSITION OF CIRCADIAN ACTIVITY RHYTHMS IN SOME VOLES, AND THEIR ENDOGENOUS COMPONENT. *Aquilo Ser. Zool.* 13: 87-91, 4 figs. 1972. *WR 150: 29*
[Univ. Oulu, Oulu, Finland.] Regular seasonal changes of the phase relationship between circadian activity rhythms and the natural light-dark cycle are demonstrated in two nocturnal species: field vole *(Microtus agrestis)* and bank vole *(Clethrionomys glareolus).*--From abstr.

Erkinaro, Eino. HIGH-FREQUENCY COMPONENT OF CIRCADIAN ACTIVITY RHYTHM DEPENDENT ON ILLUMINATION INTENSITY IN *MICROTUS AGRESTIS* (RODENTIA). *Aquilo Ser. Zool.* 13: 92-94, 2 figs. 1972. *WR 150: 29*
[Univ. Oulu, Oulu, Finland.]

Flake, Lester D. FOOD HABITS OF FOUR SPECIES OF RODENTS ON A SHORT-GRASS PRAIEIE IN COLORADO. *J. Mammal.* 54(3): 636-647, 1 fig. Aug. 1973. *WR 150: 29*
[S. Dak. State Univ., Brookings.] *"Dipodomys ordii, Onychomys leucogaster, Peromyscus maniculatus* and *Spermophilus tridemlineatus."*

Fleharty, Eugene D., and Jerry R. Choate. BIOENERGETIC STRATEGIES OF THE COTTON RAT, *SIGMODON HISPIDUS*. *J. Mammal.* 54(3): 680-692, 2 figs. Aug. 1973. *WR 150: 30*
[Fort Hays Kans. State Coll., Hays.]

Fleharty, Eugene D., Jerry R. Choate, and Michael A. Mares. FLUCTUATIONS IN POPULATION DENSITY OF THE HISPID COTTON RAT: FACTORS INFLUENCING A "CRASH". *Bull. S. Calif. Acad. Sci.* 71(3): 132-138, illus. 1972. [From Biol. Abstr. 55 (11), 1973.] *WR 150: 30*
[Fort Hays Kans. State Coll., Hays.] *"Sigmodon hispidus."*

Frantz, Stephen Clarence. BEHAVIORAL ECOLOGY OF THE LESSER BANDICOOT RAT, *BANDICOTA BENGALENSIS* (GRAY), IN CALCUTTA. *Ph.D. thesis, Johns Hopkins Univ.* 233 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(1), 1973.] *WR 150: 30*

Frischknecht, Neil C., and Maurice F. Baker. VOLES CAN IMPROVE SAGEBRUSH RANGELANDS. *J. Range Manage.* 25(6): 466-468, illus. 1972. [From Biol. Abstr. 55(11), 1973.] *WR 150: 30*
[Bur. Sport Fish. & Wildl., Fed. Building, Provo, Utah.]

Gambaryan, P. O., and V. D. Oganesyan. [NUMERICAL KEY TO THE RODENTS OF THE ARMENIAN SSR.] *Biol. Zh. Arm.* 25(2): 18-25, illus. 1972. [From Biol. Abstr. 55(12), 1973. In Russian with Armenian summ.] *WR 150: 30*
A rather intricate system of classification and coding for various rodents is presented. Each part of the body and each organ is given a number and assigned to a specific group. A formula for the numerical key is presented and discussed.

Haarakangas, Heikki. EFFECTS OF COLD EXPOSURE ON THE ACTIVITY OF ALKALINE PHOSPHATASE IN THE KIDNEY AND DUODENUM OF THE MOUSE. *Aquilo Ser. Zool.* 13: 29-34, 2 figs. 1972. *WR 150: 30*
[Univ. Oulu, Oulu, Finland.]

Hansson, Lennart. SEASONAL CHANGES IN PHYSIOLOGY AND NUTRITION OF HERBIVOROUS SMALL RODENTS. *Aquilo Ser. Zool.* 13: 53-55. 1972. *WR 150: 30*
[Inst. Forest Zool., Skogshögskolan, Stockholm, Sweden.] Abstract: Seasonal changes in growth and reproduction of herbivorous small rodents correspond to changes between protein-rich growing plant food and mainly energy-rich food from storage and structural plant tissues. Causal relations are discussed and evolutionary adaptations suggested.

Harling, John. ENERGY CONSUMPTION RELATIVE TO ENERGY REQUIREMENTS IN WILD DEERMICE *(PEROMISCUS MANICULATUS)*. *Ph.D. thesis, Simon Fraser Univ.* (Canada). 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(3), 1973. To obtain a microfilm copy order directly from the National Library of Canada at Ottawa.] *WR 150: 30*

Heisinger, J. F., T. S. King, H. W. Halling, and B. L. Fields. RENAL ADAPTATIONS TO MACRO- AND MICRO-HABITATS IN THE FAMILY CRICETIDAE. *Comp. Biochem. Physiol. A Comp. Physiol.* 44(3): 767-774, illus. 1973. [From Biol. Abstr. 56 (2), 1973.] *WR 150: 30*
[Univ. S. Dak., Vermillion.]

Helm, John D. III, and James R. Bowers. SPERMATOZOA OF *TYLOMYS* AND *OTOTYLOMYS*. *J. Mammal.* 54(3): 769-772, 1 fig. Aug. 1973. *WR 150: 30*
[Mich. State Univ., East Lansing.]

Hickman, Graham C., and Larry N. Brown. MOUND-BUILDING BEHAVIOR OF THE SOUTHEASTERN POCKET GOPHER *(GEOMYS PINETIS)*. *J. Mammal.* 54(3): 786-790. Aug. 1973. *WR 150: 30*
[Tex. Tech Univ., Lubbock.]

Hooven, Edward F. NOTES ON THE WATER VOLE IN OREGON. *J. Mammal.* 54(3): 751-753. Aug. 1973. *WR 150: 31*
[Oreg. State Univ., Corvallis.] *"Microtus richardsoni arvicoloides."*

Hoover, Kenneth Dean. SOME ECOLOGICAL FACTORS INFLUENCING THE DISTRIBUTIONS OF TWO SPECIES OF POCKET MICE (GENUS *PEROGNATHUS*). *Ph.D. thesis, N. Mex. State Univ.* 93 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(4), 1973.] *WR 150: 31*
"Perognathus penicillatus and *P. intermedius."*

Ivanter, E. V. [CONTRIBUTION TO THE ECOLOGY OF *SICISTA BETULINA* PALL.] *Aquilo Ser. Zool.* 13: 103-108, 5 figs. 1972. In Russian with English summ. *WR 150: 31*
[Petrozavodsk State Univ., Petrozavodsk, Karelia, USSR.] Abstract: In the Karelian ASSR *Sicista betulina* is found as far north as lat. 64° 30'. It comprises 1.7-2.9% of the catch of micromammalia, occurring at a rate of 0.042 specimens per 10 snap-trap nights or 0.32 per 10 pit-fall nights, most frequently in deciduous forests. More than half of the Karelian population consists of specimens which have hibernated once, approx. 10% have had two hibernations and approx. 4% three or even four hibernations. During the summer the adult females raise one litter consisting of 3-11 (mean = 5) young, which reach puberty at the age of almost one year. Hibernation lasts 8 months, from the end of September until the beginning of May. Insects, green plant mass and seeds predominate in the diet. Adult individuals moult in June-July, young ones in July-August.

Jaslove, Stewart W., and John J. McManus. THE INFLUENCE OF TEMPERATURE ON FEEDING, DRINKING AND NEST CONSTRUCTION BY THE WHITE-FOOTED MOUSE, *PEROMYSCUS LEUCOPUS*. *Bull. N.J. Acad. Sci.* 17(1): 1-6, illus. 1972. [From Biol. Abstr. 56(1), 1973.] *WR 150: 31*
[Fairleigh Dickinson Univ., Madison, N.J.]

Kalshukhov, N. I. SOME PECULIARITIES IN ADAPTATION IN THE STEPPE AND YELLOW LEMMINGS *(LAGURUS LAGURUS* PALL. AND *L. LUTEUS* EVERSM.). *Ekologiya* 1: 69-76. Jan.-Feb. 1970. Translation from Russian by Consultants Bureau (New York). p. 52-57. 1970. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 31*

Kapitonov, V. I. [OBSERVATION OF THE ECOLOGY OF SATUNIN'S PYGMY JERBOA IN KAZAKHSTAN.] *Izv. Akad. Nauk Kaz. SSR Ser. Biol. Nauk* 5. p. 38-43, illus. 1972. [From Biol. Abstr. 56(4), 1973. In Russian with Kazakhstan summ.] *WR 150: 31*
[Inst. Zool., Acad. Sci. Kaz. SSR, Alma-Ata, USSR.]

Kartman, L., and B. W. Hudson. THE EFFECT OF FLEA CONTROL ON YERSINIA (PASTEURELLA) PESTIS ANTIBODY RATES IN THE CALIFORNIA VOLE, *MICROTUS CALIFORNICUS*, AND ITS EPIZOOTIOLOGICAL IMPLICATIONS. *Bull. W. H. O.* 45: 295-301. 1971. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 31*

Kennedy, Michael L., Troy L. Best, and Dala Joy Rookstool. ACTIVITY PATTERN OF THE PADRE ISLAND KANGAROO RAT, *DIPODOMYS COMPACTUS* TRUE. *Southwestern Nat.* 18(2): 242-243, 1 fig. 29 June 1973. *WR 150: 31*
[Univ. Okla., Norman.]

Klimchenko, I. Z., P. E. Naiden, G. I. Mekhtiev, P. F. Emel'yanov, E. A. Petrosyan, and M. K. Kafarov. [THE EFFECT OF THE CONTROL OF *MERIONES VINOGRADOVI* ON THE STRUCTURE OF ITS POPULATION.] *Ekologiya* 3(5): 5-11, illus. 1972. [From Biol. Abstr. 55(12), 1973. In Russian.] *WR 150: 31*
[Res. Inst. Antiplague, Stavropol, USSR.]

Le Louarn, H. DÉTERMINATION DE L'ÂGE PAR LA PESÉE DES CRISTALLINS CHEZ QUELQUES ESPÈCES DE RONGEURS. [AGE DETERMINATION BY EYE-LENS WEIGHT OF SEVERAL SPECIES OF RODENTS.] *Mammalia* 35(4): 636-643. Dec. 1971. [From J. Mammal. 54 (1, suppl.), 1973. In French with English summ.] *WR 150: 31*

Linares, Omar J. NOTAS ACERCA DE LA CAPTURA DE UNA RATA ACUATICA *(NECTOMYS SQUAMIPES)* EN LA CUEVA DEL AGUA (AN-1), ANZOATEGUI, VENEZUELA. [NOTES REGARDING THE CAPTURE OF *NECTOMYS SQUAMIPES* IN CUEVA DEL AGUA (AN-1), ANZOATEGUI, VENEZUELA.] *Bol. Soc. Venezolana Espeleol.* 2(1): 31-34. Mar. 1969. [From J. Mammal. 54(1, suppl.), 1973. In Spanish.] *WR 150: 32*

Lobachev, V. S., and T. U. Khamdamova. [FOOD HABITS OF THE GREAT GERBIL.] *Byull. Mosk. O-va. Ispyt. Prir. Otd. Biol.* 77(5): 40-54, illus. 1972. [From Biol. Abstr. 56(4), 1973. In Russian with English summ.] *WR 150: 32*
"Rhombomys opimus."

Marinina, L. S. VITAL ACTIVITY OF THE *RHOMBOMYS OPIMUS* POPULATION IN THE CENTRAL KARAKUM AFTER THE WINTER OF 1968/69. *Ekologiya* 2(1): 98-102. Jan.-Feb. 1971. Translation from Russian by Consultants Bureau (New York). p. 77-80. Feb. 1971. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 32*

Martens, J., and J. Neithammer. DIE WALDMÄUSE *(APODEMUS)* NEPALS. [THE FIELD MICE *(APODEMUS)* OF NEPAL.] *Z. Saeugetierk.* 37(3): 144-154. June 1972. [From J. Mammal. 54(1, suppl.), 1973. In German with English summ.] *WR 150: 32*

Matskasi, Istvan. THE HUNGARIAN HARVEST MOUSE *(MICROMYS MINUTUS PRATENSIS)*, A NEW HOST OF THE BAT FLUKE *LECITHODENDRIUM LINSTOWI* (TREMATODES). *Parasitol. Hung.* 4: 137-144, illus. 1971. [From Biol. Abstr. 56(3), 1973. In English with Hungarian summ.] *WR 150: 32*
[Hungarian Nat. Hist. Mus., Budapest, Hungary.]

Metzgar, Lee H. EXPLORATORY AND FEEDING HOME RANGES IN *PEROMYSCUS*. *J. Mammal.* 54(3): 760-763, 1 fig. Aug. 1973. *WR 150: 32*
[Univ. Mont., Missoula.]

Miller, Donald H., and Lowell L. Getz. FACTORS INFLUENCING THE LOCAL DISTRIBUTION OF THE REDBACK VOLE, *CLETHRIONOMYS GAPPERI*, IN NEW ENGLAND. *Univ. Conn. Occas. Pap. Biol. Sci. Ser.* 2(9): 115-138, illus. 1972. [From Biol. Abstr. 56 (4), 1973.] *WR 150: 32*
[Lyndon State Coll., Lyndonville, Vt.]

Morse, Douglass H. HABITAT UTILIZATION BY MEADOW VOLES ON SMALL ISLANDS. *J. Mammal.* 54(3): 792-794. Aug. 1973. *WR 150: 32*
[Univ. Md., College Park.] *"Microtus pennsylvanicus* and *Clethrionomys gapperi."*

Mullen, Robert K., and Robert M. Chew. ESTIMATING THE ENERGY METABOLISM OF FREE-LIVING *PEROGNATHUS FORMOSUS*: A COMPARISON OF DIRECT AND INDIRECT METHODS. *Ecology* 54(3): 633-637, 1 fig. Late Spring 1973. *WR 150: 32*
[Univ. Southern Calif., Los Angeles.] Abstract: The results of an energy metabolism study of free-living *Perognathus formosus*, performed with the $D_2^{18}O$ method, are compared with data derived from metabolism chamber studies of the same species. Adding an activity correction factor to the metabolism chamber data results in oxygen consumption values essentially no different from those obtained from free-living *P. formosus*. This agreement was not unexpected, since the two methods share a large common component, i.e., the energy expended for thermoregulation. The agreement was partly fortuitous, however, in that *P. formosus* happens to behave similarly in nature and in the laboratory. Other species do not so behave. Thus, if prior knowledge is lacking concerning the metabolic behavior of a species in its natural environment, any indirect method of estimating that behavior would have to be validated by a direct method.--Courtesy/ Paul A. Stewart.

Mysterud, Ivar, and Henning Dunker. FORPLANTNING AV LEMEN, *LEMMUS LEMMUS*, I BARSKOG 675 M. O. H. UNDER OPPGANGSAR. [BREEDING OF THE NORWEGIAN LEMMING, *LEMMUS LEMMUS*, IN CONIFEROUS FOREST AT 675 M ALTITUDE DURING A PREPEAK YEAR.] *Fauna* (Oslo) 25(3): 160-162, illus. 1972. [From Biol. Abstr. 55(12), 1973. In Norwegian with English summ.] *WR 150: 32*
[Univ. Oslo, Oslo, Norway.]

Nikitina, N. A., B. E. Karulin, and N. S. Zen'kovich. [DAILY ACTIVITY AND TERRITORY OF THE COMMON VOLE *(MICROTUS ARVALIS* PALL.).] *Byull. Mosk. O-va. Ispyt. Prir. Otd. Biol.* 77(5): 55-64, illus. 1972. [From Biol. Abstr. 56(2), 1973. In Russian with English summ.] *WR 150: 33*

Norris, M. L., and C. E. Adams. THE GROWTH OF THE MONGOLIAN GERBIL, *MERIONES UNGUICULATUS*, FROM BIRTH TO MATURITY. *J. Zool.* (London) 166(3): 277-282 + 1 pl. Mar. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 33*

O'Farrell, Michael John. SEASONAL ACTIVITY PATTERNS, POPULATION DYNAMICS AND SPATIAL RELATIONSHIPS OF RODENTS IN A SAGEBRUSH COMMUNITY. *Ph.D. thesis, Univ. Nev.* 203 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(3), 1973.] *WR 150: 33*

Spatial isolation was observed between *Peromyscus* and *Reithrodontomys megalotis*, whereas *Onychomys torridus*, a possible predator, demonstrated a considerable overlap with these spp. The mechanisms allowing coexistence of rodents in this area appear to be differential feeding strategies, agonistic behavior, asynchronization of activity patterns, temporal isolation and simple avoidance under conditions of low population density.

O'Farrell, Thomas P., John D. Hedlund, Richard J. Olson, and Richard O. Gilbert. RADIATION EFFECTS IN FREE-RANGING POCKET MICE, *PEROGNATHUS PARVUS*, DURING THE BREEDING SEASON. *Science* 179(4070): 289-291, 1 fig. 19 Jan. 1973. *WR 150: 33*

[Battelle, Pacific Northwest Labs., Richland, Wash.] Abstract: Captive and free-ranging Great Basin pocket mice, *Perognathus parvus*, were exposed to ionizing radiation during the breeding season, April-June, in 1971. The values for the median lethal dose (LD_{50}) at 30 days plus or minus the standard deviation were 880 ± 14 rads and 780 ± 27 rads, respectively, and the slopes of the survivorship curves were significantly different. These differences suggested that there was a synergism between radiation-induced and environmental sources of mortality, since the field data were corrected for natural mortality (5 percent) in the controls.

Olsen, Douglas E., and Robert W. Seabloom. ADRENOCORTICAL RESPONSE TO CAPTIVITY IN *MICROTUS PENNSYLVANICUS*. *J. Mammal.* 54(3): 779-781. Aug. 1973. *WR 150: 33*

[Gogebic Community Coll., Ironwood, Mich.]

Olsen, Ronald W. SHELTER-SITE SELECTION IN THE WHITE-THROATED WOODRAT, *NEOTOMA ALBIGULA*. *J. Mammal.* 54(3): 594-610, 2 figs. Aug. 1973. *WR 150: 33*

[Western Mich. Univ., Kalamazoo.]

Orlov, V. N., and V. M. Malygin. [DISTRIBUTION OF TWIN SPECIES OF THE COMMON VOLE IN THE VICINITY OF THE ZVENIGOROD BIOLOGICAL STATION OF THE MOSCOW STATE UNIVERSITY.] *Vestn. Mosk. Univ. Ser. 6 Biol. Pochvoved.* 26(5): 102-104, illus. 1971. [From Biol. Abstr. 56(1), 1973. In Russian.] *WR 150: 33*

[Moscow State Univ., Moscow, USSR.] The common vole *Microtus arvalis*, one of the most numerous rodents of the European part of the USSR, is actually not 1 but 2 spp. These species are similar morphologically but differ in chromosome sets.

Østbye, Eivind, and Ivar Mysterud. ROAD COUNTS AS A METHOD FOR DESCRIPTION OF REGIONAL DISTRIBUTION OF LEMMINGS, *LEMMUS LEMMUS* (L.), DURING CYCLIC HIGHS. *Aquilo Ser. Zool.* 13: 35-39, 1 fig. 1972. *WR 150: 33*

[Univ. Oslo, Oslo, Norway.] Abstract: Road count census is described here as a practical method in the study of regional distribution of high densities of small mammal populations. This method has proved especially useful in studies of lemmings *(Lemmus lemmus)* during peak years. It has also been successfully used on other non-resident Fennoscandian small mammals, for instance, the wood lemming *(Myopus schisticolor)*. The road count method is, therefore, recommended for following the outbreaks of such species.

537-264 O - 74 - 3

Ostwald, R., and others. INFLUENCE OF PHOTOPERIOD AND PARTIAL CONTACT ON ESTRUS IN THE DESERT POCKET MOUSE, *PEROGNATHUS PENICILLATUS*. *Biol. Reprod.* 7 (1): 1-8. Aug. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 34*

Papanyan, S. B. [ECOLOGY OF *MERIONES BLACKLERI BODGANOVI* HEPTNER IN THE ARMENIAN SSR.] *Biol. Zh. Arm.* 25(4): 59-66, illus. 1972. [From Biol. Abstr. 55(12), 1973. In Russian with Armenian summ.] *WR 150: 34*
[Inst. Zool., Acad. Sci. Arm. SSR, Yerevan, USSR.]

Paschal, J. E., and others. A SIMULATED MODEL OF A WHITE-FOOTED MOUSE *(PEROMYSCUS LEUCOPUS)* POPULATION IN A PART OF THE GREAT DISMAL SWAMP. *Va. J. Sci.* 22 (3): 114. Fall 1972. [From J. Mammal. 54(1, suppl.), 1973. Abstract only.] *WR 150: 34*

Patton, James L. AN ANALYSIS OF NATURAL HYBRIDIZATION BETWEEN THE POCKET GOPHERS, *THOMOMYS BOTTAE* AND *THOMOMYS UMBRINUS*, IN ARIZONA. *J. Mammal.* 54(3): 561-584, 9 figs. Aug. 1973. *WR 150: 34*
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[All-Union Res. Inst. Hunting Fur Farming, Leningrad, USSR.] *"Mustela nivalis, M. erminea, M. putorius, M. lutreola, M. vison, Gulo gulo, Lutra lutra,* and *Martes martes."*

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[Univ. New Brunswick, Fredricton, New Brunswick, Canada.] Narration of sightings made during the period 1926-1971.

BIG GAME, GENERAL

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[Am Tierpark 41, Berlin-Friedrichsfelde, Germany.]

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[Moscow Vet. Acad., Moscow, USSR.] *"Cervus elaphus."*

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[Hluhluwe Game Reserve, P.O. Box 25, Mtubatuba, Natal, South Africa.] Summary: The factors which contributed towards a population crash of nyala *Tragelaphus angasi* in Ndumu a small enclosed game reserve, are described and discussed. A gradual loss of condition occurred due to an overpopulation coinciding with a period when vegetation of poor nutritional value was available. At first mortality was low, but increased dramatically following a sudden drop in temperature, and heavy rainfall. Disease did not contribute greatly towards the mortality. Other herbivorous species did not appear to suffer as much as nyala from the unfavourable environmental conditions prevailing.

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[Hluhluwe Game Reserve, P.O. Box 25, Mtubatuba, Natal, South Africa.] *"Ceratotherium simum."*

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537-264 O - 74 - 4

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to the embryo growth curve developed by Cheatum and Morton (1946). Fawns were found to have bred significantly later than older deer. Mean dates were December 6 for fawns, November 21 for yearlings and November 22 for deer 2 1/2 years old or older. Corresponding parturition dates were June 25, June 12 and June 13. Physical condition as judged from the fat content of the femur marrow was not related to breeding date in any given animal. Mean and median breeding and parturition dates are given for 10 deer range sections of the State. Several limitations of the growth curve used are discussed.

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[Univ. Calif., Davis.] Summary: During the 1972 breeding season of Northern elephant seals *(Mirounga angustirostris)* on Año Nuevo Island, California, samples of blood were collected from 17 pups and 1 female adult seal; serums were prepared and electrophoretic analysis was done. Electrophoretograms identifying albumin and 6 globulin peaks were observed. The transmission of passive β- and γ-globulins through the colostrum was demonstrated.

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BIRDS--GENERAL

Delmee, E., P. Dachy, and P. Simon. CONTRIBUTION A LA BIOLOGIE DES MESANGES (PARIDAE) EN MILIEU FORESTIER. [CONTRIBUTION TO THE BIOLOGY OF TITMICE (PARIDAE) IN A FOREST SETTING.] *Aves* 9(1/2): 1-80, illus. 1972. [From Biol. Abstr. 55 (12), 1973. In French.] *WR 150: 63*
[Stn. Ornithol. "Motacilla", Tournai, Belgium.]

BIRDS--GENERAL--Continued

Frame, George W. OCCURRENCE OF BIRDS IN THE BEAUFORT SEA, SUMMER 1969. *Auk* 90(3): 552-563, 3 figs. July 1973. *WR 150: 64*
[Utah State Univ., Logan.] With observations on 10 spp.--Courtesy/ Paul A. Stewart.

Rucner, Renata, editor. LARUS / IX-X / 1955-1956. *Translated and published for Smithsonian Institution and the National Science Foundation, Washington, D.C., by the Nolit Publishing House, Belgrade, Yugoslavia.* TT 70-56074. 212 p., illus. 1973. Serbo-Croatian original published by Institute of Ornithology in 1955-1956. [Translation available from U.S. Dep. Commerce, National Technical Information Service, Springfield, Va.] *WR 150: 64*
The following papers are included in this issue: *Bird banding in 1954 and 1955*, Renata Kroneisl-Rucner; *Syrian woodpecker*, Dendrocopos syriacus, *in Croatia and the problem of its hybridization with the great spotted woodpecker*, Dendrocopos major, Renata Kroneisl-Rucner; *Biological data on the Syrian woodpecker*, Dendrocopos syriacus balcanicus, *and its relations towards the starling*, Sturnus vulgaris, László Szlivka; *Birds of the Island of Krk*, Dragutin Rucner; *Birds of the Mosor Mountain and its environs*, Mladen Krpan; *Ornithological observations on the Adriatic Coast*, Wolfgang Bernhauer; *Ornithological notes from the Kočevje Region*, Robert Hainard; *Peregrine*, Falco peregrinus, *on the territory of Vojvodina and its nesting on buildings*, Milorad Marčetić; *Eagles in biotopes of Vojvodina*, Milorad Marčetić; *Spoonbill*, Platalea leucorodia, *no longer a permanent nester of marsh bird colonies in Vojvodina*, Milorad Marčetić; *Black stork*, Ciconia nigra, *in Vojvodina*, Milorad Marčetić; *A new duck species in Serbia*, Zoran Ajdarić; *An American nighthawk in Srijem*, András Keve; *Red-breasted goose*, Branta ruficollis, *in Rumania*, István Kohl; *Measurements of the collared turtle dove*, Streptopelia decaocto decaocto *(Friv.), collected in Yugoslavia*, Renata Kroneisl-Rucner; *The song of the nightingale and thrush nightingale*, Luscinia megarhynchos *and* Luscinia luscinia, Hans Stadler; and *Report on the first bat banding and recoveries in Croatia*, Beatrica Đulić.

BIRDS--TECHNIQUES

Ballard, Warren B., and Daniel E. Bowen. CAPTURE METHODS FOR THE UPLAND PLOVER. *Inland Bird Banding News* 45(4): 132-135. July-Aug. 1973. *WR 150: 64*
[Kans. State Univ., Manhattan.]

Binford, Laurence C. A SHORT METHOD FOR TREATING AVIAN BREEDING DATA IN REGIONAL ACCOUNTS. *Wilson Bull.* 85(2): 244-246. June 1973. *WR 150: 64*
[Calif. Acad. Sci., Golden Gate Park, San Francisco.] Word phrases are suggested, proceeding from the strongest to the weakest evidence.--Courtesy/ Paul A. Stewart.

Gal, Ioan Korodi. INCERCARI DE MARIRE A DENSITATII POPULATILLOR DE PASARI FOLOSITOARE PRIN METODA CUIBURILOR ARTIFICIALE. [ATTEMPT TO INCREASE THE DENSITI OF HOLE BREEDING USEFUL BIRD SPECIES USING ARTIFICIAL NESTING BOXES.] *Stud. Cercet. Biol. Ser. Zool.* 24(3): 275-279. 1972. [From Biol. Abstr. 55(12), 1973. In Romanian with German and English summ.] *WR 150: 64*
[Univ. "Babes-Bolyai", Cluj, Romania.]

Johnson, Ellis. A DEVICE TO HOLD BIRDS FOR PHOTOGRAPHIC PURPOSES. *Inland Bird Banding News* 45(4): 128-131, illus. July-Aug. 1973. *WR 150: 64*
[10893 Ursula Dr., Willow Springs, Ill.]

Nachtigall, Werner. BEMERKUNGEN UEBER ZWEIDIMENSIONALE HOCHFREQUENZAUFNAHMEN FLIEGENDER VOEGEL UND UEBER ZEITLUPEN-REIHENBILDER VON A. PISKORSCH. [REMARKS CONCERNING THE TWO DIMENSIONAL HIGH SPEED PHOTOGRAPHY OF BIRDS IN FLIGHT INCLUDING HIGH SPEED FILMS BY A. PISKORSCH.] *J. Ornithol.* 113(4): 427-434, illus. 1972. [From Biol. Abstr. 56(2), 1973. In German with English summ.] *WR 150: 64*
[Univ. Saarl., Saarbruecken, Germany.]

BIRDS--TECHNIQUES--Continued

Novikov, G. A. THE USE OF UNDER-SNOW REFUGES AMONG SMALL BIRDS OF THE SPARROW FAMILY. *Aquilo Ser. Zool.* 13: 95-97. 1972. *WR 150: 65*
[Leningrad State Univ., Leningrad, USSR.]

Stiles, F. Gary, and Larry L. Wolf. TECHNIQUES FOR COLOR-MARKING HUMMINGBIRDS. *Condor* 75(2): 244-245, 2 figs. Summer 1973. *WR 150: 65*
[Organization for Tropical Studies, Apartado 16, Ciudad Universitario, Costa Rica.] Hummingbirds were marked with paint spots on the back and by affixing a plastic tag to a leg. Marks were retained for several years.--Courtesy/ Paul A. Stewart.

BIRDS--MORPHOLOGY & PHYSIOLOGY

Bock, Walter J., Russell P. Balda, and Stephen B. Vander Wall. MORPHOLOGY OF THE SUBLINGUAL POUCH AND TONGUE MUSCULATURE IN CLARK'S NUTCRACKER. *Auk* 90(3): 491-519, 9 figs. July 1973. *WR 150: 65*
[Columbia Univ., New York, N.Y.] *"Nucifraga columbiana."*

Britton, Peter L. WEIGHTS OF AFRICAN BULBULS (PYCNONOTIDAE). *Ostrich* 43(1): 23-42, illus. 1972. [From Biol. Abstr. 56(4), 1973.] *WR 150: 65*
[Sawagonogo Secondary School, Yala, Kenya.]

Diamond, A. W. ALTITUDINAL VARIATION IN A RESIDENT AND A MIGRANT PASSERINE ON JAMAICA. *Auk* 90(3): 610-618, 2 figs. July 1973. *WR 150: 65*
[Cousin Island, Seychelles, Indian Ocean.] Wing length, bill length, and weight of adult bananaquits *(Coereba flaveola)* are positively correlated with altitude and mean annual rainfall.--Courtesy/ Paul A. Stewart.

Dol'nik, T. V. [ENERGY BALANCE IN *FRINGILLA COELEBS* NESTLINGS.] *Ekologiya* 3 (4): 43-47. 1972. [From Biol. Abstr. 56(1), 1973. In Russian.] *WR 150: 65*
[Zool. Inst., Acad. Sci. USSR, Leningrad, USSR.]

Esilevskaya, M. A. [ECOLOGICAL AND MORPHOLOGICAL CHARACTERISTICS OF THE MAXILLARY APPARATUS AND FLIGHT ORGANS OF THE LARKS, ALAUDIDAE.] *Biol. Nauk.* 15 (7): 25-32, illus. 1972. [From Biol. Abstr. 56(1), 1973. In Russian.] *WR 150: 65*
[A. M. Gorkii Khark. State Univ., Kharkov, USSR.] *"Lullula arborea."*

Kloek, Gerrit P. FUNCTIONAL MORPHOLOGY OF THE FEEDING APPARATUS IN PROCELLARIIFORM BIRDS. *Ph.D. thesis, Southern Ill. Univ.* 209 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(4), 1973.] *WR 150: 65*

Morton, Martin L., and David E. Welton. POSTNUPTIAL MOLT AND ITS RELATION TO REPRODUCTIVE CYCLE AND BODY WEIGHT IN MOUNTAIN WHITE-CROWNED SPARROWS *(ZONOTRICHIA LEUCOPHRYS ORIANTHA)*. *Condor* 75(2): 184-189, 3 figs. Summer 1973. *WR 150: 65*
[Occidental Coll., Los Angeles, Calif.] Chronology of the molt was affected by reproductive activities, being delayed by feeding of young. Molt was also later during wet than dry years. The period of feather renewal covered an average of 48.8 days. Due to fat accumulation, weight increased by about 25% between the time of nesting activities and southward migration.--Courtesy/ Paul A. Stewart.

Pearson, D. J. MOULT OF SOME PALAEARCTIC WARBLERS WINTERING IN UGANDA. *Bird Study* 20(1): 24-36, 5 figs. Mar. 1973. *WR 150: 65*
[Univ. Nairobi, Nairobi, Kenya.]

Steyn, Peter. THE DEVELOPMENT OF SENEGAL COUCAL NESTLINGS. *Ostrich* 43(1): 56-59, illus. 1972. [From Biol. Abstr. 56(4), 1973.] *WR 150: 65*
[P.O. Box 9199, Hillside, Bulawayo, Rhodesia.] *"Centropus senegalensis."*

537-264 O - 74 - 5

Stresemann, Erwin, and Vesta Stresemann. DIE POSTNUPTIALE UND DIE PRAENUPTIALE VOLLMAUSER VON *PERICROCOTUS DIVARICATUS* RAFFLES. [THE POSTNUPTIAL AND PRENUPTIAL MOLTS OF *PERICROCOTUS DIVARICATUS* RAFFLES.] *J. Ornithol.* 113(4): 435-439. 1972. [From Biol. Abstr. 56(2), 1973. In German with English summ.] *WR 150: 66*
[Kamillenst. 28, Berlin, Germany.]

Udvardy, Miklos D. F. PLUMAGE CYCLES IN ADULT NORTH AMERICAN BIRDS. *Aquilo Ser. Zool.* 13: 56-60, 1 fig. 1972. *WR 150: 66*
[Calif. State Univ., Sacramento.] Abstract: Two dichotomous variables of coloration, viz. sexual and/or seasonal monomorphism and/or dimorphism are used to distinguish seven groups of adult plumage types among North American bird species. This scheme is aimed at facilitating identification and recognition by ornithology students.

Utter, James M., and Eugene A. LeFebvre. DAILY ENERGY EXPENDITURE OF PURPLE MARTINS *(PROGNE SUBIS)* DURING THE BREEDING SEASON: ESTIMATES USING D_2O^{18} AND TIME BUDGET METHODS. *Ecology* 54(3): 597-604. Late Spring 1973. *WR 150: 66*
[State Univ. N.Y., Purchase.] Abstract: Mean daily energy expenditures (DDE) determined from D_2O^{18} turnover rates were 39.9 kcal (RQ=0.9) and 43.9 kcal (RQ=0.8) for two female purple martins feeding nestlings. The means for two males not feeding nestlings consistently were 31.2 kcal (RQ=0.9) to 34.2 kcal (RQ=0.8). Time budget observations obtained during the corresponding period of the breeding cycle at a second colony indicated females spent 67% of the active day in flight while males appeared to spend only 47% in flight. An equation for estimating daily energy expenditure from time budget data provide results that differ from the D_2O^{18} derived DDE by 0.8% (RQ=0.8) to 9.9% (RQ=0.9) for females and 11.4% (RQ=0.8) to 19.1% (RQ=0.9) for males. The difference in apparent accuracy for the females and males is attributed to less adequate sampling of the male's behavioral activities. We advocate using time budget data for estimating daily energy expenditure when it is unfeasible to use the D_2O^{18} method.

BIRDS--BEHAVIOR

Balat, Frantisek. ZUR FRAGE DES LEGEBEGINNS BEI DEM FELDSPERLING, *PASSER MONTANUS* L. [ON THE QUESTION OF FIRST EGG LAYING BY THE TREE SPARROW, *PASSER MONTANUS* L.] *Zool. Listy* 21(3): 235-244, illus. 1972. [From Biol. Abstr. 56 (1), 1973. In German with English summ.] *WR 150: 66*
[Czech. Acad. Sci., Brno, Czechoslovakia.]

Berndt, Rudolf, and Wolfgang Winkel. UEBER DAS NAECHTIGEN WEIBLICHER MEISEN *(PARUS)* WAEHREND DER JUNGENAUFZUCHT. [ON NOCTURNAL BROODING BY FEMALE TITS *(PARUS) WHILE* REARING YOUNG.] *J. Ornithol.* 113(4): 357-365, illus. 1972. [From Biol. Abstr. 56(2), 1973. In German with English summ.] *WR 150: 66*
[Aussenstn. Braunschw. Populationsoekol. I. f. V., Bahnhorst. 13, Weddel, Germany.]

Brackbill, Hervey. IMMATURE ROBIN GATHERING NEST MATERIAL. *Wilson Bull.* 85 (2): 238. June 1973. *WR 150: 66*
[2620 Poplar Dr., Baltimore, Md.] *"Turdus migratorius."*--Courtesy/ Paul A. Stewart.

Bruce, James A. TAIL FLASHING DISPLAY IN THE WHIP-POOR-WILL. *Auk* 90(3): 682. July 1973. *WR 150: 66*
[4144 Suitland Rd., Apt. 102, Suitland, Md.] A male whip-poor-will *(Caprimulgus vociferus)* alternately spread and closed its tail feathers when hovering about one meter above the ground.--Courtesy/ Paul A. Stewart.

Buskirk, William Hugh. FORAGING ECOLOGY OF BIRD FLOCKS IN A TROPICAL FOREST. *Ph.D. thesis, Univ. Calif.* (Davis). 155 p. 1972. [From Diss. Abstr. Int. B Sci. Eng. 34(1), 1973.] *WR 150: 66*

Catchpole, Clive K. THE FUNCTIONS OF ADVERTISING SONG IN THE SEDGE WARBLER *(ACROCEPHALUS SCHOENOBAENUS)* AND THE REED WARBLER *(A. SCIRPACEUS)*. *Behaviour* 44 (3-4): 300-320, 6 figs. 1973. In English with German summ. *WR 150: 67*
[Univ. London, London, England.] The only common function for which advertizing song is utilized in both species is sexual attraction of the female. This, and other evidence discussed suggests that sexual attraction may be the most important and perhaps the most primitive function of advertizing song in these species.--From summ.

Diesselhorst, Gerd. BEEREN UND FARBENWAHL DURCH VOEGEL. [BERRIES AND COLOR PREFERENCE IN BIRDS.] *J. Ornithol.* 113(4): 448-449. 1972. [From Biol. Abstr. 56(2), 1973. In German with English summ.] *WR 150: 67*
[Zool. Staatssamml., Maria-Ward-St. 1b, Munich, Germany.]

Duffin, Kathleen. BARN SWALLOWS USE FRESHWATER AND MARINE ALGAE IN NEST CONSTRUCTION. *Wilson Bull.* 85(2): 237-238. June 1973. *WR 150: 67*
[211 Montross Rd., Yorktown Heights, N.Y.] On an island offering few sources of mud, algae was used for nest construction by barn swallows *(Hirundo rustica)*. --Courtesy/ Paul A. Stewart.

Ficken, Millicent S., and Robert W. Ficken. EFFECT OF NUMBER, KIND AND ORDER OF SONG ELEMENTS ON PLAYBACK RESPONSES OF THE GOLDEN-WINGED WARBLER. *Behaviour* 46(1-2): 114-128, 5 figs. 1973. In English with German summ. *WR 150: 67*
[Univ. Wis., Milwaukee.] *"Vermivora chrysoptera."*

Gavlyuk, E. V. [DATA ON FEEDING OF CONTINENTAL NUTHATCH FLEDGLINGS IN THE LENINGRAD REGION.] *Biol. Nauk.* 15(1): 19-21. 1972. [From Biol. Abstr. 55(12), 1973. In Russian.] *WR 150: 67*
[Leningrad Pedagog. Inst., Leningrad, USSR.]

Gill, Frank B., and Bertram G. Murray, Jr. DISCRIMINATION BEHAVIOR AND HYBRIDIZATION OF THE BLUE-WINGED AND GOLDEN-WINGED WARBLERS. *Evolution* 26(2): 282-293, illus. 1972. [From Biol. Abstr. 56(1), 1973.] *WR 150: 67*
[Acad. Nat. Sci., Philadelphia, Pa.]

Goss-Custard, J. D. THE RESPONSES OF REDSHANK *(TRINGA TOTANUS* (L.)) TO SPATIAL VARIATIONS IN THE DENSITY OF THEIR PREY. *J. Anim. Ecol.* 39(1): 91-113, 6 figs. Feb. 1970. *WR 150: 67*
[Univ. Bristol, Bristol, England.]

Howell, James Clayton. COMMUNICATIVE BEHAVIOR IN THE CEDAR WAXWING *(BOMBYCILLA CEDRORUM)* AND THE BOHEMIAN WAXWING *(BOMBYCILLA GARRULUS)*. *Ph.D. thesis, Univ. Mich.* 164 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(4), 1973.] *WR 150: 67*

Kilham, Lawrence. REPRODUCTIVE BEHAVIOR OF THE RED-BREASTED NUTHATCH. I. COURTSHIP. *Auk* 90(3): 597-609, 1 fig. July 1973. *WR 150: 67*
[Dartmouth Med. School, Hanover, N.H.] Based on both wild-living and aviary red-breasted nuthatches *(Sitta canadensis)* descriptions are given of vocalizations, displays, development of courtship, pursuit flights, copulatory behavior, relation of courtship to aggressive behavior, and comparative behavior. --Courtesy/ Paul A. Stewart.

Kovshar', A. F. [THE EFFICIENCY OF REPRODUCTION OF MOUNTAIN PASSERIFORMES.] *Ekologiya* 3(4): 53-57. 1972. [From Biol. Abstr. 56(1), 1973. In Russian.] *WR 150: 67*
[Inst. Zool., Acad. Sci. Kaz. SSR, Alma-Ata, USSR.]

Kroodsma, Donald Eugene. SINGING BEHAVIOR OF THE BEWICK'S WRENS: DEVELOPMENT, DIALECTS, POPULATION STRUCTURE, AND GEOGRAPHICAL VARIATION. *Ph.D. thesis, Oreg. State Univ.* 128 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 33(12), 1973.] *WR 150: 67*

Loehrl, Hans. ZUM NAHRUNGSERWERB BEIM BUNTSPECHT *(DENDROCOPOS MAJOR)*. [NOTES ON FORAGING TECHNIQUES AND FOOD PREFERENCES OF THE GREAT SPOTTED WOODPECKER *(DENDROCOPOS MAJOR).*] *Ans. Ornithol. Ges. Bayern* 11(3): 248-253. 1972. [From Biol. Abstr. 56(2), 1973. In German with English summ.] *WR 150: 68*
[Am Schlossberg, Moeggingen, Germany.]

Loncke, Daniel J. CEDAR WAXWING COURTS WHITE-THROATED SPARROW. *Auk* 90(3): 674-675. July 1973. *WR 150: 68*
[Univ. Toronto, Toronto, Ontario, Canada.] A cedar waxwing *(Bombycilla cedrorum)* gave its courtship display near a female white-throated sparrow *(Zonotrichia albicollis)* which was carrying nest material.--Courtesy/ Paul A. Stewart.

Mueller, Edward. CHICKADEES AT ADJACENT FEEDING SITES: THE EFFECTS OF FOOD DEPRIVATION. *Auk* 90(3): 520-532, 3 figs. July 1973. *WR 150: 68*
[Boston Univ., Boston, Mass.] Groups of black-capped chickadees *(Parus atricapillus)* in the winter woods represented temporary associations of individuals on the common ground of overlapping ranges, rather than individuals all occupying the same range.--Courtesy/ Paul A. Stewart.

Müller-Schwarze, Dietland, and Christine Müller-Schwarze. ANTIPREDATOR AND SOCIAL BEHAVIOR IN ANTARCTIC PENINSULA PENGUINS. *Antarctic J.* 7(4): 75. July-Aug. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 68*

Ohmart, Robert D. OBSERVATIONS ON THE BREEDING ADAPTATIONS OF THE ROADRUNNER. *Condor* 75(2): 140-149, 5 figs. Summer 1973. *WR 150: 68*
[Ariz. State Univ., Tempe.] Nesting time of roadrunners *(Geococcyx californianus)* coincided with greatest food abundance, and clutch size was related to food supply during egg laying. Incubation started with the laying of the first egg. The chief food of the young was whiptailed lizards. At age 4-5 days the parents ceased brooding their young and both aided in hunting food for them. When the food supply declined during the nestling period, the youngest nestlings were eaten by their parents. Water loss in gular fluttering and cutaneous evaporation was counterbalanced by the excretion of salts by the salt-secreting nasal gland and by the regurgitation by the parent birds of a clear liquid with each feeding of the young.--From summ. Courtesy/ Paul A. Stewart.

Post, William. THE SOCIAL ORGANIZATION AND BEHAVIOR OF THE SEASIDE SPARROW AS AN ADAPTIVE RESPONSE TO DIFFERING ENVIRONMENTAL CONDITIONS. *Ph.D. thesis, N.C. State Univ.* (Raleigh). 118 p. 1972. [From Diss. Abstr. Int. B Sci. Eng. 33(12), 1973.] *WR 150: 68*

Potter, Eloise F. BREEDING BEHAVIOR OF THE SUMMER TANAGER. *Chat* 37(2): 35-39. June 1973. *WR 150: 68*
[P.O. Box 277, Zebulon, N.C.] *"Piranga rubra."* The following are discussed: nest site selection, nest construction, incubation, hatching, development of young, care of young, courtship feeding, song, territory, maintenance activities, and the family after the nesting season.--Courtesy/ Paul A. Stewart.

Powers, Leon R. RECORD OF A ROBIN FEEDING SHREWS TO ITS NESTLINGS. *Condor* 75(2): 248. Summer 1973. *WR 150: 68*
[Idaho State Univ., Pocatello.] Nestling robins *(Turdus migratorius)* successfully swallowed two shrews of an unidentified species.--Courtesy/ Paul A. Stewart.

Rajecki, D. W. IMPRINTING IN PRECOCIAL BIRDS: INTERPRETATION, EVIDENCE, AND EVALUATION. *Psychol. Bull.* 79(1): 48-58. 1973. [From Biol. Abstr. 56(2), 1973.] *WR 150: 68*
[Univ. Mich., Ann Arbor.]

Rothstein, Stephen I. EXTREME OVERLAP BETWEEN FIRST AND SECOND NESTINGS IN THE ROSE-BREASTED GROSBEAK. *Wilson Bull.* 85(2): 242-243. June 1973. *WR 150: 69*
[Univ. Calif., Santa Barbara.] A second nesting was initiated by a pair of rose-breasted grosbeaks *(Pheucticus ludovicianus)* when the young in the first nest were two to six days old.--Courtesy/ Paul A. Stewart.

Sharipov, M. [THE FEEDING HABITS OF URBAN *LANIUS SCHACH ERYTHRONOTUS* (VIGORS.) POPULATIONS IN THE FERGANA VALLEY.] *Ekologiya* 3(4): 99-100. 1972. [From Biol. Abstr. 55(12), 1973. In Russian.] *WR 150: 69*
[Inst. Zool. Parasitol., Acad. Sci. Uzb. SSR, Tashkent, USSR.]

Sloan, Norman F., and Gary A. Simmons. FORAGING BEHAVIOR OF THE CHIPPING SPARROW IN RESPONSE TO HIGH POPULATIONS OF JACK PINE BUDWORM. *Am. Midl. Nat.* 90 (1): 210-215, 1 fig. July 1973. *WR 150: 69*
[Mich. Technol. Univ., Houghton.] Abstract: A study was conducted to determine the foraging behavior of the chipping sparrow, *Spizella passerina* (Bechstein) on high population levels of the jack pine budworm, *Choristoneura pinus* (Clem.). Cage studies indicated that the chipping sparrow can recognize parasitized larvae and pupae and avoid these. The "specific search image" of Tinbergen was demonstrated in the studies.

Snow, Barbara K. THE BEHAVIOR AND ECOLOGY OF HERMIT HUMMINGBIRDS IN THE KANAKU MOUNTAINS, GUYANA. *Wilson Bull.* 85(2): 163-177, 1 fig. June 1973. *WR 150: 69*
[Old Forge, Wingrave, Nr. Aylesbury, Bucks, England.] Breeding season, song, territorial display, available flowers, feeding niches, and abundance in relation to social behavior in six species of hermit hummingbirds are discussed.--Courtesy/ Paul A. Stewart.

Stefanski, Raymond A., and J. Bruce Falls. A STUDY OF DISTRESS CALLS OF SONG, SWAMP, AND WHITE-THROATED SPARROWS (AVES: FRINGILLIDAE): I. INTRASPECIFIC RESPONSES AND FUNCTIONS. *Canadian J. Zool.* 50(12): 1501-1512, illus. 1972. [From Biol. Abstr. 55(12), 1973.] *WR 150: 69*
[Univ. Cambridge, Cambridge, England.]

Stefanski, Raymond A., and J. Bruce Falls. A STUDY OF DISTRESS CALLS OF SONG, SWAMP, AND WHITE-THROATED SPARROWS (AVES: FRINGILLIDAE): II. INTERSPECIFIC RESPONSES AND PROPERTIES USED IN RECOGNITION. *Canadian J. Zool.* 50(12): 1513-1525, illus. 1972. [From Biol. Abstr. 55(12), 1973.] *WR 150: 69*
[Univ. Cambridge, Cambridge, England.]

Van Riper, Charles III. THE NESTING OF THE APAPANE IN LAVA CAVES ON THE ISLAND OF HAWAII. *Wilson Bull.* 85(2): 238-240, 1 fig. June 1973. *WR 150: 69*
[Univ. Hawaii, Honolulu.] *"Himatione sanguinea."*--Courtesy/ Paul A. Stewart.

Wickler, Wolfgang. AUFBAU UND PAARSPEZIFITAET DES GESANGSDUETTES VON *LANIARIUS FUNEBRIS* (AVES, PASSERIFORMES, LANIIDAE). [STRUCTURE AND PAIR-SPECIFICITY OF DUETTING IN THE SLATE-COLOURED BOU BOU SHRIKE, *LANIARIUS FUNEBRIS.*] *Z. Tierpsychol.* 30(5): 464-476, illus. 1972. [From Biol. Abstr. 56(1), 1973. In German with English summ.] *WR 150: 69*
[Max-Planck Inst. Verhaltensphysiol., Seewiesen, Germany.]

Wickler, Wolfgang. DUETTIEREN ZWISCHEN ARTVERSCHIEDENEN VOEGELN IM FREILAND. [INTERSPECIFIC DUETTING OF FREE LIVING BIRDS.] *Z. Tierpsychol.* 31(1): 98-103, illus. 1972. [From Biol. Abstr. 55(12), 1973. In German with English summ.] *WR 150: 69*
[Max-Planck-Inst. Verhaltensphysiol., Seewiesen, Germany.] "Bou-bou shrike *(Laniarius funebris)* and drongo *(Dicrurus adsimilis).*"

BIRDS--BEHAVIOR--Continued

Willson, Mary F., and Janet C. Harmeson. SEED PREFERENCES AND DIGESTIVE EFFICIENCY OF CARDINALS AND SONG SPARROWS. *Condor* 75(2): 225-234. Summer 1973. *WR 150: 70*

[Univ. Ill., Champaign.] Particularly at lower temperatures, the major construent of the diet of cardinals *(Richmondena cardinalis)* and song sparrows *(Melospiza melodia)* were associated with caloric value of the seeds. Metabolic efficiencies of the two species were often different for different seeds and sometimes changed with temperature.--Courtesy/ Paul A. Stewart.

Wright, Robert E. OBSERVATIONS ON THE URBAN FEEDING HABITS OF THE ROADRUNNER *(GEOCOCCYX CALIFORNIANUS)*. *Condor* 75(2): 246. Summer 1973. *WR 150: 70*

[3209-A via Buena Vista, Laguna Hills, Calif.] Roadrunners were frequent visitors in the backyard of a city home.--Courtesy/ Paul A. Stewart.

BIRDS--MIGRATION & BANDING REPORTS

Berthold, Peter, Eberhard Gwinner, Helmut Klein, and Paul Westrich. BEZIEHUNGEN ZWISCHEN ZUGUNRUHE UND ZUGABLAUF BEI GARTEN- UND MOENCHSGRASMUERCKE *(SYLVIA BORIN* UND *S. ATRICAPILLA)*. [RELATIONSHIPS BETWEEN MIGRATORY RESTLESSNESS AND MIGRATION IN THE BLACKCAP *(SYLVIA ATRICAPILLA)* AND THE GARDEN WARBLER *(S. BORIN)*.] *Z. Tierpsychol.* 30(1): 26-35, illus. 1972. [From Biol. Abstr. 56 (1), 1973. In German with English summ.] *WR 150: 70*

[7761 Schloss Moeggingen, Germany.]

Dolbik, M. S., and F. Ya. Rubin. [WINTERING OF MIGRATORY BIRDS IN WHITE RUSSIA.] *Vyesti Akad. Navuk B SSR Biyal. Navuk* 2. p. 89-92. 1972. [From Biol. Abstr. 55(12), 1973. In White Russian with Russian summ.] *WR 150: 70*

Gochfeld, Michael. CONFUSED NOCTURNAL BEHAVIOR OF A FLOCK OF MIGRATING YELLOW WAGTAILS. *Condor* 75(2): 252-253. Summer 1973. *WR 150: 70*

[Am. Mus. Nat. Hist., New York, N.Y.] A small flock of yellow wagtails *(Motacilla flava)* remained within a lighted area as if unable to penetrate it to continue in migration.--Courtesy/ Paul A. Stewart.

Hadow, Harlo H. WINTER ECOLOGY OF MIGRANT AND RESIDENT LEWIS' WOODPECKERS IN SOUTHEASTERN COLORADO. *Condor* 75(2): 210-224, 10 figs. Summer 1973. *WR 150: 70*

[Univ. Colo., Boulder.] Lewis' woodpeckers *(Asyndesmus lewis)* were partially migratory in southeastern Colorado, about half of the summer population being resident. Both migratory and resident birds stored food for winter needs, and all protected their stores from other birds. Birds which remained in their nesting areas on the plain had fewer encounters in protecting their stores than birds which migrated to the foothills.--Courtesy/ Paul A. Stewart.

Moreau, R. E. THE PALAEARCTIC-AFRICAN BIRD MIGRATION SYSTEMS. *Academic Press* (London & New York). xv + 384 p., 8 figs., 187 maps + 31 pls., 6.25 x 10 in. 1972. Price $24.00. *WR 150: 70*

Contents: Part I. THE SOURCES OF THE MIGRANTS: The migrants species and their ranges; The fluctuating ecology of the source areas; The circumstances of the migrants' journeys; The numbers of birds involved; Part II. AFRICA AS A RECEPTION AREA: Topography and climate; Vegetation and water habitats; The availability of food; The avian environments; Part III. THE SPECIES: Introduction; Warblers; Other passerines; Non-passerines; Raptorial birds; Water birds; Part IV. GENERAL TOPICS: The maintenance needs of the migrants in Africa; Recurrence in winter quarters and itinerancy; References; Appendix; and Species distribution maps.

BIRDS--MANUALS, FAUNAS, COMMUNITIES

Abdulali, Humayun. A CATALOGUE OF THE BIRDS IN THE COLLECTION OF THE BOMBAY NATURAL HISTORY SOCIETY: II. STRIGIDAE AND CAPRIMULGIDAE. *J. Bombay Nat. Hist. Soc.* 69(1): 102-129. 1972. [From Biol. Abstr. 56(1), 1973.] *WR 150: 70*

A listing of 93 spp. and sspp.

Araya, Braulion, and Abel Arrieta. LAS AVES DE CALETA POTTER, ISLA REY JORGE, ANTARTICA CHILENA: CENSO Y DISTRIBUCION. [THE BIRDS OF POTTER COVE, KING GEORGE ISLAND, SOUTH SHETLAND ISLANDS: CENSUS AND DISTRIBUTION.] *Rev. Biol. Mar.* 14(3): 121-128, illus. 1971. [From Biol. Abstr. 55(12), 1973. In Spanish with English summ.] *WR 150: 71*
[Univ. Chile, Santiago, Chile.]

Ariagno, Daniel. LES DORTOIRS URBAINS ET PERIURBAINS D'OISEAUX, A LYON. [THE URBAN AND PERIURBAN BIRD GATHERING SITES OF LYON.] *Bull. Mens. Soc. Linn. Lyon* 41(8): 164-172, illus. 1972. [From Biol. Abstr. 56(2), 1973. In French.] *WR 150: 71*
[Univ. Lyon, Villeurbanne, France.]

Beals, Edward W. BIRDS OF A *EUPHORBIA-ACACIA* WOODLAND IN ETHIOPIA: HABITAT AND SEASONAL CHANGES. *J. Anim. Ecol.* 39(1): 277-297, 7 figs. + 1 pl. June 1970. *WR 150: 71*
[Univ. Wis., Madison.]

Brown, Vinson, Henry G. Weston, Jr., and Jerry Buzzell. HANDBOOK OF CALIFORNIA BIRDS. 2nd revised edition. *Naturegraph Publ.* (Healdsburg, Calif.). 224 p., illus. including 72 color pls., 5.5 x 8.5 in. 1973. Price $8.95, paper $5.95. *WR 150: 71*
"Of California birds (including those on offshore islands) 368 species are described in this book. Names are based on the 1957 A.O.U. Checklist of North American Birds. All these species are illustrated in color in the book and many are also pictured in black and white to show species qualities such as flight patterns or food foraging behavior. Additional species recorded in the state but considered rare or unusual in occurrence have been listed and briefly described."

Carlsson, Ulf T. FAGELIAKTTAGELSER I OCH KRING OVRE VINDELDALEN, LYCKSELE LAPPMARK SOMRARNA 1964-66. [OBSERVATIONS OF BIRDS IN AND AROUND THE UPPER VINDEL VALLEY, LYCKSELE LAPPMARK, THE SUMMERS 1964-66.] *Fauna Flora* 66(5): 191-212, illus. 1971. [From Biol. Abstr. 55(12), 1973. In Swedish.] *WR 150: 71*
[Adolfsbergvagen 2 H, Kristinehamn, Sweden.] The environments of 20 habitats visited are described. Vegetation, lakes and rivers in Sweden are stressed. In the summer of 1963 small rodents were numerous and accelerated breeding of hawks, owls and other predators. A list of bird species observed in the habitats, with notes, is given.

Clancey, P. A. A HANDLIST OF THE BIRDS OF SOUTHERN MOCAMBIQUE. PART II (PASSERIFORMES). *Mem. Inst. Invest. Cient. Mocambique Ser. A Cienc. Biol.* 11. p. 1-167, 21 figs. + 6 photos. 1971. *WR 150: 71*
[Durban Mus., Durban, South Africa.] For part one see *WR 146: 93.*

Clancey, P. A. A CATALOGUE OF BIRDS OF THE SOUTH AFRICAN SUB-REGION: SUPPLEMENT 2. *Durban Mus. Nov.* 9(12): 163-200. 1972. [From Biol. Abstr. 56(4), 1973.] *WR 150: 71*
[Durban Mus., Durban, South Africa.]

Diamond, Jared M. DISTRIBUTIONAL ECOLOGY OF NEW GUINEA BIRDS. *Science* 179 (4075): 759-769, 9 figs. 23 Feb. 1973. *WR 150: 71*
[Univ. Calif., Los Angeles.] "Recent ecological and biogeographical theories can be tested on the bird communities of New Guinea."

Dyer, Elizabeth, Peggy Jahn, and Dorothy P. Miller. BIRDS OF THE WHITE CLAY CREEK VALLEY. *Delmarva Ornithol.* 8(1): 24-30, [1 fig.]. Jan. 1973 *WR 150: 71*
Includes a checklist of 185 spp. of birds found in this valley at Pennsylvania and Delaware checkpoints.

Edwards, Ernest P. A FIELD GUIDE TO THE BIRDS OF MEXICO / INCLUDING ALL BIRDS OCCURRING FROM THE NORTHERN BORDER OF MEXICO TO THE SOUTHERN BORDER OF NICARAGUA. *Ernest P. Edwards* (Sweet Briar, Va.). vi + 300 p. + 24 pls. 1972. Price $8.50. *WR 150: 71*
"With its color plates illustrating nearly 500 Mexican bird species not occurring in the United States, this *Field Guide* provides an abundance of aids for

bird identification in Mexico. It includes details about the range, behavior (including voice in most cases), and colors and shapes of each of the nearly 1000 birds which occur regularly in Mexico; and goes on to cover in abbreviated style each of the additional birds found in Guatemala, Belice, El Salvador, Honduras and Nicaragua. A major innovation is the inclusion of a Spanish description of each bird."

Fall, Bruce A. NOTEWORTHY BIRD RECORDS FROM SOUTH TEXAS (KENEDY COUNTY). *Southwestern Nat.* 18(2): 244-247. 29 June 1973. *WR 150: 72*
[Tex. A&M Univ., College Station.]

Gill, H. B. BIRDS OF THE OPALTON AREA (23° 15'S, 142° 30'E). *Emu* 73(1): 21-22. 1973. [From Biol. Abstr. 56(3), 1973.] *WR 150: 72*
[MS 216, Innisfail, Queensland, Australia.]

Holmes, Richard T., and Craig P. Black. ECOLOGICAL DISTRIBUTION OF BIRDS IN THE KOLOMAK RIVER-ASKINUK MOUNTAIN REGION, YUKON-KUSKOKWIM DELTA, ALASKA. *Condor* 75(2): 150-163, 3 figs. Summer 1973. *WR 150: 72*
[Dartmouth Coll., Hanover, N.H.] The occurrence and distribution of 88 spp. and the nesting habitats and feeding areas of 56 spp. regularly breeding in the area, are discussed.--Courtesy/ Paul A. Stewart.

Kanuscak, Pavel. PRISPEVOK K VYSKYTU NIEKTORYCH ZIMUJUCICH VTAKOV V OKOLI PIESTAN. [THE OCCURRENCE OF SOME HIBERNATING BIRDS IN THE SURROUNDING OF PIESTANY.] *Zb. Slov. Nar. Mus. Prir. Vedy* 17(2): 127-134, illus. 1971. [From Biol. Abstr. 56(1), 1973. In (Slovak) with German summ.] *WR 150: 72*
[Prednadrazie LB/4, Piestany, Czechoslovakia.]

Littlefield, Carroll D., and Eldon L. McLaury. UNUSUAL BIRD RECORDS FROM SOUTHEASTERN OREGON. *Auk* 90(3): 680-682. July 1973. *WR 150: 72*
[Malheur Natl. Wildl. Refuge, Burns, Oreg.] Observations on 8 spp.--Courtesy/ Paul A. Stewart.

Martens, Jochen. BRUTVERBREITUNG PALAEARKTISCHER VOEGEL IM NEPAL-HIMALAYA. [BREEDING DISTRIBUTION OF PALEARCTIC BIRDS IN THE NEPAL HIMALAYAS.] *Bonn Zool. Beitr.* 23(2): 95-121, illus. 1972. [From Biol. Abstr. 56(1), 1973. In German with English summ.] *WR 150: 72*
[Univ. Mainz, Mainz, Germany.]

Papadopol, Aurel. RECHERCHES ORNITHOLOGIQUES DANS LA ZONE DES LACS SALES DU NORD-EST DE LA PLAINE ROUMAINE (I). [ORNITHOLOGICAL RESEARCH IN THE SALT LAKES ZONE OF THE NORTHEASTERN SECTION OF THE ROMANIAN PLAIN (I).] *Trav. Mus. Hist. Nat. "Grigore Antipa"* 11: 363-392, illus. 1971. [From Biol. Abstr. 56(2), 1973. In French with Romanian summ.] *WR 150: 72*

Papadopol, Aurel. RECHERCHES ORNITHOLOGIQUES DANS LA ZONE DES LACS SALES DU NORD-EST DE LA PLAINE ROUMAINE: II. LES BASSINS INFERIEURS DES RIVIERES BUZAU, CALMATUI ET IALOMITA. [ORNITHOLOGICAL RESEARCH IN THE SALT LAKE REGION IN THE NORTHEASTERN ROMANIAN PLAIN: II. THE LOWER BASINS OF THE BUZAU, CALMATUI AND IALOMITA RIVERS.] *Trav. Mus. Hist. Nat. "Grigore Antipa"* 12: 319-341, illus. 1972. [From Biol. Abstr. 56(1), 1973. In French with Romanian, Russian and English summ.] *WR 150: 72*
[Mus. Hist. Nat. "Grigore Antipa", Bucharest, Romania.]

Saito, Takashi, and Hiroshi Ando. [THE AVIFAUNA IN SUGADAIRA AND VICINITY.] *Bull. Sugadaira Biol. Lab.* 5. p. 19-28. 1972. [From Biol. Abstr. 56(2), 1973. In Japanese with English summ.] *WR 150: 72*

Scott, J. Michael, Thomas W. Haislip, Jr., and Margaret Thompson. A BIBLIOGRAPHY OF OREGON ORNITHOLOGY (1935-1970), WITH A CROSS-REFERENCED LIST OF THE BIRDS OF OREGON. *Northwest Sci.* 46(2): 122-139. 1972. [From Biol. Abstr. 55 (12), 1973.] *WR 150: 72*
[Oreg. State Univ., Corvallis.]

Simpson, Marcus B., Jr. NOTES ON THE SUMMER BIRDS OF THE SOUTH MOUNTAINS. *Chat* 36(4): 99-101. Dec. 1972. *WR 150: 73*
[P.O. Box 167, Statesville, N.C.] Annotated list of 66 spp. of birds recorded for South Mountains of North Carolina.--Courtesy/ Paul A. Stewart.

Trittmann, Klaus. ORNITHOLOGISCHE UNTERSUCHUNGEN IN AUSGEWAEHLTEN BIOTOPEN IM RAUM HUETTENTAL/WESTF. [ORNITHOLOGICAL STUDIES IN SELECTED BIOTOPES IN THE AREA HUETTENTAL/WESTPHALIA.] *Nat. Heimat* 32(1): 17-20, illus. 1972. [From Biol. Abstr. 55(12), 1973. In German.] *WR 150: 73*
[Am Buell 24, Kreuztal-Buschhuetten, Germany.]

Tugaev, D. G., and V. I. Vasil'ev. [CHARACTERISTICS OF THE AVIAN FAUNA OF THE PRINCIPAL BODIES OF WATER AND THEIR REGIONS IN THE KURA-ARAKSIN LOWLAND.] *Izv. Akad. Nauk Az. SSR Ser. Biol. Nauk* 1. p. 84-90, illus. 1972. [From Biol. Abstr. 56(4), 1972. In Russian with Azerbaijani summ.] *WR 150: 73*

Webster, J. Dan. RICHARDSON'S ZACATECAS COLLECTION, I. *Condor* 75(2): 239-241. Summer 1973. *WR 150: 73*
[Hanover Coll., Hanover, Ind.] New or revised information based on collections in the late nineteenth century in western Mexico.--Courtesy/ Paul A. Stewart.

Wells, D. R. SURVIVAL OF THE MALAYSIAN BIRD FAUNA. *Malay. Nat. J.* 24(3/4): 248-256. 1971. [From Biol. Abstr. 56(1), 1973.] *WR 150: 73*
[Univ. Malaya, Kuala Lumpur, Malaysia.]

Wiens, John A. INTERTERRITORIAL HABITAT VARIATION IN GRASSHOPPER AND SAVANNAH SPARROWS. *Ecology* 54(4): 877-884, 4 figs. Summer 1973. *WR 150: 73*
[Oreg. State Univ., Corvallis.] Abstract: Individual variation in features of habitat structure among territories of breeding grasshopper sparrows and savannah sparrows in a southern Wisconsin grassland was examined. Grasshopper sparrow territories established late in the breeding season were larger than those occupied earlier. In savannah sparrows, time of establishment had no significant effect upon territory size, but variation in the amount of grass cover was highly correlated with size differences. There was considerable interterritorial variation in habitat features in both species, but patterns relating to territory size, position in the breeding population, and time of territory establishment were well-defined in savannah sparrows, whereas grasshopper sparrow territories generally showed little systematic pattern of variation. Although these species occupied similar habitat situations after breeding populations stabilized in mid-June, they initially established territories in quite different portions of the habitat spectrum.

Wikan, Steinar. FUGLEFAUNAEN I OVRE PASVIK. [THE BIRD FAUNA OF OVRE PASVIK.] *Fauna* (Oslo) 25(3): 163-180, illus. 1972. [From Biol. Abstr. 55(12), 1973. In Norwegian with English summ.] *WR 150: 73*
[Bjornevatan, Norway.] Includes a list of all bird species observed since 1900.

Zimmerman, Dale A. THE AVIFAUNA OF THE KAKAMEGA FOREST, WESTERN KENYA, INCLUDING A BIRD POPULATION STUDY. *Bull. Am. Mus. Nat. Hist.* 149(3): 255-340, illus. 1972. [From Biol. Abstr. 56(3), 1973.] *WR 150: 73*
[Western N. Mex. Univ., Silver City.]

BIRDS--POPULATIONS & FLUCTUATIONS

Kumari, Erik. CHANGES IN THE BIRD FAUNA OF ESTONIAN PEAT BOGS DURING THE LAST DECADES. *Aquilo Ser. Zool.* 13: 45-47. 1972. In English with German and Russian summ. *WR 150: 73*
[Inst. Zool. & Bot., Acad. Sci. Estonian SSR, Tartu, USSR.]

Mayfield, Harold F. CENSUS OF KIRTLAND'S WARBLER IN 1972. *Auk* 90(3): 684-685. July 1973. *WR 150: 74*
[9235 River Rd., Waterville, Ohio.] The population on their breeding grounds of Kirtland's warblers *(Dendroica kirtlandii)* was 60% lower in 1971-72 than in the period 1951-61.--Courtesy/ Paul A. Stewart.

Petetin, M., and J. Trotignon. PROSPECTION HIVERNALE AU BANC D'ARGUIN (MAURITANIE). [WINTER CENSUSES AT THE BANC D'ARGUIN (MAURITANIA).] *Alauda* 40 (3): 195-213, illus. 1972. [From Biol. Abstr. 56(1), 1973. In French with English summ.] *WR 150: 74*
[85 Ave. Paris, Versailles, France.] Census of shorebirds.

Reichholf, Josef, and Hans Utschick. VORKOMMEN UND RELATIVE HAEUFIGKEIT DER SPECHTE (PICIDAE) IN DEN AUWAELDERN AM UNTEREN INN. [OCCURRENCE AND RELATIVE ABUNDANCE OF THE WOODPECKERS (PICIDAE) IN THE DECIDUOUS WOODLANDS ALONG THE LOWER RIVER INN.] *Anz. Ornithol. Ges. Bayern* 11(3): 254-262. 1972. [From Biol. Abstr. 56(2), 1973. In German with English summ.] *WR 150: 74*
[Aigen/Inn, Germany.]

Sage, Bryan L. CEDAR WAXWINGS IN CENTRAL ALASKA. *Condor* 75(2): 245-246. Summer 1973. *WR 150: 74*
[Pennant, Dugdale Hill Lane, Potters Bar, Hertfordshire, England.] Two cedar waxwings *(Bombycilla cedrorum)* were seen more than 700 miles north of their earlier known range.--Courtesy/ Paul A. Stewart.

Skaren, Uolevi. FLUCTUATIONS IN SMALL MAMMAL POPULATIONS IN MOSSY FORESTS OF KUHMO, EASTERN FINLAND, DURING ELEVEN YEARS. *Ann. Zool. Fenn.* 9(3): 147-151, illus. 1972. [From Biol. Abstr. 56(2), 1973.] *WR 150: 74*
[Sonkajarvi, Finland.]

Walter, Hartmut, and Attilio Mocci Demartis. BRUTDICHTE UND OEKOLOGISCHE NISCHE SARDISCHER STADVOEGEL. [DENSITY AND ECOLOGICAL NICHE OF SARDINIAN CITY BIRDS.] *J. Ornithol.* 113(4): 391-406, illus. 1972. [From Biol. Abstr. 56(4), 1973. In German with English summ.] *WR 150: 74*
[Univ. Calif., Los Angeles.]

Yamagishi, Satoshi. A STUDY OF THE HOME RANGE AND THE TERRITORY IN MEADOW BUNTING *(EMBERIZA CIOIDES)*: I. INTERNAL STRUCTURE OF HOME RANGE UNDER A HIGH DENSITY IN BREEDING SEASON. *Misc. Rep. Yamashina's Inst. Ornithol.* 6(4): 356-368, illus. 1971. [From Biol. Abstr. 55(12), 1973. In English with Japanese summ.] *WR 150: 74*
[Shinshu Univ., Yamanouchi-machi, Nagano, Japan.]

BIRDS--ECONOMICS, CONTROL, MORTALITY

Ainley, David G. A BEACH SURVEY REPORT. *Point Reyes Bird Observatory Newsl.* no. 26. p. 2-3, 2 figs. June 1973. *WR 150: 74*
Report of 21 months of tallying dead birds on California beaches. Seasonal differences in numbers and composition are noted.

Ainley, David G., and Robert E. LeResche. THE EFFECTS OF WEATHER AND ICE CONDITIONS ON BREEDING IN ADÉLIE PENGUINS. *Condor* 75(2): 235-239, 6 figs. Summer 1973. *WR 150: 74*
[Point Reyes Bird Observatory, Box 321, Bolinas, Calif.] It is suggested that the interplay of wind and ice conditions has much more complex effects on breeding success of adelie penguins *(Pygoscelis adeliae)* than merely causing differences in egg and chick losses.--Courtesy/ Paul A. Stewart.

Owens, R. A., and M. T. Myres. EFFECTS OF AGRICULTURE UPON POPULATIONS OF NATIVE PASSERINE BIRDS OF AN ALBERTA FESCUE GRASSLAND. *Canadian J. Zool.* 51: 697-713, 4 figs. 1973. In English with French summ. *WR 150: 75*

[F. F. Slaney and Co., Ltd., 402 West Pender Street, British Columbia, Canada.] Abstract: The effects of several forms of agricultural use of native fescue *(Festuca scabrella)* grasslands upon populations of native passerine birds were studied in the Hand Hills of southern Alberta in 1970. Censuses of avian populations were carried out on twelve 40-acre (16.2 ha) study plots as well as on two 10-mi (16.1 km) long roadside routes. The vegetation on the study plots and along the roadside routes was described. Native fescue grasslands, undisturbed for 3 years, supported a passerine community consisting of Baird's sparrow *(Ammodramus bairdii)*, Sprague's pipit *(Anthus spragueii)*, savannah sparrow *(Passerculus sandwichensis)*, clay-colored sparrow *(Spizella pallida)*, and western meadowlark *(Sturnella neglecta)*. Incomplete disturbance of fescue grasslands, by mowing for hay or grazing by cattle, reduced or eliminated Baird's sparrow and Sprague's pipit but permitted the ingress of horned lark *(Eremophila alpestris)* and chestnut-collared longspur *(Calcarius ornatus)*. Total elimination of the native grassland, by ploughing and cultivation for cereal crops, eliminated all passerine species except the horned lark. Peripheral disturbed areas resulting from cultivation, such as field boundaries and roadside ditches, may have benefitted several species that tend to occur in ecotonal habitats: savannah sparrow, clay-colored sparrow, and vesper sparrow *(Pooecetes gramineus)*.

Solman, V. E. F. BIRDS AND AIRCRAFT. *Biol. Conserv.* 5(2): 79-86, 4 figs. Apr. 1973. *WR 150: 75*

[Canadian Wildl. Serv., Ottawa, Ontario, Canada.] Abstract: Birds have caused collision damage to aircraft and loss of human life for the past 60 years. Turbine-powered machines are more vulnerable to damage than those with piston engines. Higher speeds increase the damage. Habitat management, including reduction of available food, cover, and water, can decrease the attractiveness of airfields. Proper design can make airfield structures unusable by birds. Casual bird visitors can be driven from airfields by well-motivated, energetic people with equipment ranging from pyrotechnic devices to trained falcons. Birds aloft can be observed by radar; their movements can then be forecast and safer courses for aircraft described and used. Air traffic control personnel can be trained to use bird movement forecasts and real-time (i.e. directly observed) radar data on bird activity to guide aircraft to safer passage through the "feather curtain". Costs of bird strikes can be reduced, as has been demonstrated over the past 10 years. Further improvements are possible and desirable.

Stone, C. P., D. F. Mott, J. E. Forbes, and C. P. Breidenstein. BIRD DAMAGE TO FIELD CORN IN NEW YORK IN 1971. *N.Y. Fish Game J.* 20(1): 68-73, 2 figs. Jan. 1973. *WR 150: 75*

[Denver Wildl. Res. Cent., Denver, Colo.] Abstract: A survey of damage by birds to field corn in New York was made in October of 1971. Data for 159 fields in 18 counties indicated a mean loss of 0.468 bushel per acre. Losses were greatest in the Hudson Hills, Finger Lakes and Lake Plain regions and least in the Plateau and Central Plain. Red-winged blackbirds were responsible for most of the damage. Reasons for losses being less than those in 1970 are discussed.

BIRDS--PARASITES & DISEASES

Allred, J. N., L. G. Raggi, and G. G. Lee. SUSCEPTIBILITY AND RESISTANCE OF PHEASANTS, STARLINGS, AND QUAIL TO THREE RESPIRATORY DISEASES OF CHICKENS. *Calif. Fish Game* 59(3): 161-167. July 1973. *WR 150: 75*

[Animal & Plant Health Inspection Serv., USDA, Hyattsville, Md.] Abstract: Ring-neck pheasants *(Phasianus colchicus torquatus)*, starlings *(Sturnus vulgaris)* and valley quail *(Lophortyx californica)* are among the common avian species that inhabit the Central Valley of California and frequently can be seen in proximity to poultry houses. Since a large segment of the poultry industry is located in

this area, an attempt was made to investigate the role played by these species in the epidemiology of three common diseases of chickens by determining their susceptibility to infectious laryngotracheitis virus (ILTV), infectious bronchitis virus (IBV) and *Mycoplasma gallisepticum* (MG).

Chapman, Brian Richard. THE EFFECTS OF NEST ECTOPARASITES ON CLIFF SWALLOW POPULATIONS. *Ph.D. thesis, Tex. Tech Univ.* 76 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(4), 1973.] *WR 150: 76*
"Petrochelidon pyrrhonota."

Cooper, C. Lawrence. NEW RECORDS OF *MONOPETALONEMA ALCEDINIS* (RUDOLPHI, 1819) (NEMATODA: FILARIOIDEA) FROM WISCONSIN AND CALIFORNIA. *Passenger Pigeon* 35(1): 36. 1973. *WR 150: 76*
[Ohio State Univ., Columbus.] Reported from eastern belted kingfisher and western belted kingfisher.

Eleazer, Thomas H., and Joe S. Harrell. CASE REPORT--SALMONELLOSIS IN A ROBIN. *Avian Dis.* 17(3): 665-666. July-Sept. 1973. *WR 150: 76*
[Clemson Univ. Livestock-Poultry Health Dep., Box 1771, Columbia, S.C.]

Lord, Rexford D., Telford H. Work, Philip H. Coleman, and J. Gibson Johnston, Jr. VIROLOGICAL STUDIES OF AVIAN HOSTS IN THE HOUSTON EPIDEMIC OF ST. LOUIS ENCEPHALITIS, 1964. *Am. J. Trop. Med. Hyg.* 22(5): 662-671, 1 fig. Sept. 1973. *WR 150: 76*
[Roy W. Chamberlain, Center for Disease Control, Atlanta, Ga.] Abstract: The role of birds as hosts of St. Louis encephalitis (SLE) virus was investigated in Houston during the epidemic of 1964. The virus was isolated from the blood of a Blue Jay, a Mockingbird, a feral pigeon and a domestic goose. Serological results indicated that permanent resident species were most involved. By census estimate, House Sparrows and feral pigeons were the most abundant species. Incidence of infection as judged by serological tests coupled with census estimate figures indicated that these two species comprised nearly three-fourths of all infected birds in the city.

Muratov, E. A., M. Subkhonov, and M. Mirzobakhodurov. [BLOOD PARASITES OF WILD BIRDS OF TADZHIKISTAN.] *Izv. Akad. Nauk Tadzh. SSR Otd. Biol. Nauk* 2. p. 82-85. 1971. [From Biol. Abstr. 55(11), 1973. In Russian with Tadzh. summ.] *WR 150: 76*

Phillis, William. SEASONAL ABUNDANCE OF *DERMANYSUS HIRUNDINIS* AND *D. AMERICANUS* (MESOSTIGMATA: DERMANYSSIDAE) IN NESTS OF THE HOUSE SPARROW. *J. Med. Entomol.* 9(1): 111-112. 1972. [From Biol. Abstr. 56(2), 1973.] *WR 150: 76*
[Univ. Fla., Gainesville.]

Quevedo, F., R. D. Lord, Dora Dobosch, Irma Granier, and Silvia C. Michanie. ISOLATION OF *SALMONELLA* FROM SPARROWS CAPTURED IN HORSE CORRALS. *Am. J. Trop. Med. Hyg.* 22(5): 672-674. Sept. 1973. *WR 150: 76*
[Pan American Zoonoses Cent., Casilla 23, Ramos Mejia, Buenos Aires, Argentina.]

Rausch, Robert L. CUTANEOUS MYIASIS IN A BIRD BY THE LARVAL *PROTOCALLIPHORA H. HIRUDO* SHANNON AND DOBROSCKY, 1924 (DIPTERA: CALLIPHORIDAE). *Aquilo Ser. Zool.* 13: 1-4, 1 fig. 1972. *WR 150: 76*
[Arctic Res. Cent., Fairbanks, Alaska.] In pileolated warbler, *Wilsonia pusilla pileolata.*

Tatchell, Roger J., John D. Kerr, and Fouad N. Boctor. BIOCHEMICAL AND PHYSIOLOGICAL STUDIES OF CERTAIN TICKS *(IXODOIDEA).* HAEMOLYSIS RATE AND MEAL SIZE IN THE INTERACTIONS BETWEEN *ARGAS (PERSICARGAS) ARBOREUS* KAISER, HOOGSTRAAL AND KOHLS, *A. (P.) PERSICUS* (OKEN) (ARGASIDAE) AND SOME AVIAN HOSTS. *Parasitology* 67(1): 41-51, 1 fig. Aug. 1973. *WR 150: 76*
[U.S. Naval Med. Res. Unit no. 3, c/o Spanish Embassy, Cairo, Egypt.]
"Bubulcus ibis ibis, pigeons and domestic chicken."

GAME BIRDS--GENERAL

Sterbetz, Istvan. A MAGYARORSZAGI VIZIVAD TAPLALEKBAZISA. [NUTRITIONAL BASIS OF GAME BIRDS IN HUNGARY.] *Allattani Kozl.* 59(1-4): 119-126, illus. 1972. [From Biol. Abstr. 55(12), 1973. In Hungarian with German summ.] *WR 150: 77*
[Madartani Intez., Budapest, Hungary.]

QUAIL

Borchelt, Peter L., and Stanley C. Ratner. DEVELOPMENT OF FREEZING AND IMMOBILITY, PREDATOR DEFENSES, IN THE BOBWHITE QUAIL *(COLINUS VIRGINIANUS). Behav. Biol.* 8(1): 83-92, illus. 1973. [From Biol. Abstr. 55(12), 1973.] *WR 150: 77*
[Mich. State Univ., East Lansing.]

Brisbin, I. Lehr, Jr., and Lucy J. Tally. AGE-SPECIFIC CHANGES IN THE MAJOR BODY COMPONENTS AND CALORIC VALUE OF GROWING JAPANESE QUAIL. *Auk* 90(3): 624-635, 2 figs. July 1973. *WR 150: 77*
[Savannah River Ecology Lab., P.O. Drawer E, Aiken. S.C.] Root-mean-square deviations indicated that Japanese quail *(Coturnix coturnix japonica)* growth was best approximated by a logistic model, with the attainment of an asymptotic weight of 133 g at an age of 61 days. This represents the most rapid attainment of asymptotic weight reported in the literature for any gallinaceous species. Perhaps the most important aspect of this study is the format used for data presentation.--Courtesy/ Paul A. Stewart.

Campbell, Howard, Donald K. Martin, Paul E. Ferkovich, and Bruce K. Harris. EFFECTS OF HUNTING AND SOME OTHER ENVIRONMENTAL FACTORS ON SCALED QUAIL IN NEW MEXICO. *Wildl. Monogr.* no. 34. 49 p., 5 figs. Aug. 1973. Price $1.00. *WR 150: 77*
[N. Mex. Dep. Game & Fish, Santa Fe.] Comparison of study areas, effects of hunting, effects of weather and climate, quail population dispersals, hatching schedules, and food habits of *Callipepla squamata pallida* are the major topics of discussion.

Ellis, Charles J. SYRINGEAL HISTOLOGY. I. JAPANESE QUAIL, *COTURNIX COTURNIX JAPONICA. Iowa State J. Res.* 48(1): 7-46, 27 figs. Aug. 1973. *WR 150: 77*
[Iowa State Univ., Ames.]

Gropp, J., V. Schulz, G. Sauerwein, and J. Tiews. UNTERSUCHUNGEN UEBER DIE NIKOTINSAEUREWIRKSAMKEIT VON NIKOTIMSAEURENITRIL, ZUGLEICH EIN BEITRAG ZUR ERMITTLUNG DES NIKOTINSAEUREBEDARFS DER JAPANISCHEN WACHTEL. [STUDIES ON THE NICOTINIC ACID ACTIVITY OF 3-PYRIDINE NITRILE AND CONTRIBUTION TO DETERMINATION OF THE NICOTINIC ACID REQUIREMENT OF THE JAPANESE QUAIL.] *Int. J. Vitam. Nutr. Res.* 42(2): 205-213, illus. 1972. [From Biol. Abstr. 55(11), 1973. In German with English summ.] *WR 150: 77*
[Univ. Munich, Munich, Germany.] *"Coturnix coturnix japonica."*

Ozmon, Kenneth. EFFECT OF ECS ON IMPRINTING IN JAPANESE QUAIL *(COTURNIX COTURNIX JAPONICA). J. Comp. Physiol. Psychol.* 82(3): 360-367, illus. 1973. [From Biol. Abstr. 56(4), 1973.] *WR 150: 77*
[Univ. Prince Edward Island, Charlottetown, Prince Edward Island, Canada.]

Winsor, Terrol Frank. EFFECTS OF ACUTE GAMMA RADIATION ON JAPANESE QUAIL *(COTURNIX COTURNIX JAPONICA)* IN RELATION TO FUNCTIONAL LEVELS IN A THERMONEUTRAL ENVIRONMENT, AND THERMOREGULATORY RESPONSES TO ABRUPT INCREASE IN AMBIENT AIR TEMPERATURE. *Ph.D. thesis, Wash. State Univ.* 290 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 33(12), 1973.] *WR 150: 77*

PHEASANTS

Anderson, William L., and Peggy L. Stewart. CHEMICAL ELEMENTS AND THE DISTRIBUTION OF PHEASANTS IN ILLINOIS. *J. Wildl. Manage.* 37(2): 142-153. Apr. 1973. *WR 150: 77*
[Ill. Nat. Hist. Surv., Urbana.]

PHEASANTS--Continued

Biadi, F. MISE EN ÉVIDENCE DE LA REPRODUCTION, EN SEMI-LIBERTÉ DES FAISANS D'ÉLEVAGE DU GENRE *PHASIANUS*. [EMPHASIZING REPRODUCTION, IN SEMI-LIBERTY, OF FARM RAISED PHEASANTS OF THE *PHASIANUS* GENUS.] *Trans. X Int. Congr. Game Biol.* p. 369-378, 1973. In French with German, Russian and English summ. *WR 150: 78*
[Cent. Natl. d'Experimentation St.-Benoit, Le Pertray-en-Yvelines, France.]

Carlson, H. C., J. R. Pettit, R. V. Hemsley, and W. R. Mitchell. MARBLE SPLEEN DISEASE OF PHEASANTS IN ONTARIO. *Canadian J. Comp. Med.* 37(3): 281-286, 4 figs. July 1973. In English with French summ. *WR 150: 78*
[Univ. Guelph, Guelph, Canada.]

Hoffman, Donald M. NESTING COVER FOR PHEASANTS. *Colo. Outdoors* 22(3): 36-38, illus. May-June 1973. *WR 150: 78*
Recommendations based upon study: roadsides and other pheasant nesting cover should not be moved before early August nor should they be sprayed with herbicides (particularly in legume-grassland cover types).

Lachlan, C., and R. P. Gray. A STUDY OF AN UNMANAGED PHEASANT POPULATION AT BROWNSEA ISLAND, DORSET, ENGLAND. *Trans. X Int. Congr. Game Biol.* p. 609-617, 3 figs. 1973. In English with French, German and Russian summ. *WR 150: 78*
[Game Conservancy, Fordingbridge, Hampshire, England.]

McNeel, Jack. THE JAPANESE VERSICOLOR PHEASANT. *Idaho Wildl. Rev.* 26(1): 12-15, illus. 1973. *WR 150: 78*
More than 9,000 "green" pheasants have been released in northern Idaho during the past 10 years. "There are no known breeding populations of greens in the wild at this time."

GROUSE, PARTRIDGE, ETC.

Birkan, M. G. POPULATIONS DE PERDRIX GRISE *(PERDIX PERDIX)* ET AGRICULTURE SUR UN TERRITOIRE DE CHASSE PRÈS DE PROVINS (SEINE-ET-MARNE). [GREY PARTRIDGE *(PERDIX PERDIX)* POPULATIONS AND AGRICULTURE ON A HUNTING TERRITORY NEAR PROVINS (SEINE ET MARNE).] *Trans. X Int. Congr. Game Biol.* p. 157-165, 1 fig. 1973. In French with German, Russian and English summ. *WR 150: 78*
[Lab. Petits Vertébrés., C.N.R.Z., Jouy-en-Josas, France.]

Birkan, M. G. RÉUSSITE DES LACHERS DE PERDRIX GRISE *(PERDIX PERDIX* L.) ET DE PERDRIX ROUGE *(ALECTORIS RUFA* L.) D'ÉLEVAGE. [SUCCESS FACTOR AS REGARDS RELEASES OF FARM RAISED GREY PARTRIDGES *PERDIX PERDIX* L. AND RED LEGGED PARTRIDGES *ALECTORIS RUFA* L.] *Trans. X Int. Congr. Game Biol.* p. 345-358, 1 fig. 1973. In French with German, Russian and English summ. *WR 150: 78*
[Lab. Petits Vertébrés, C.N.R.Z., Jouy-en-Josas, France.]

Borgarneko, L. F. [HELMINTHS OF THE TIBETAN GROUSE *(SYRRHAPTES TIBETANUS)* IN PAMIR.] *Izv. Akad. Nauk Tadzh. SSR Otd. Biol. Nauk* 2. p. 92-93. 1971. [From Biol. Abstr. 55(11), 1973. In Russian with Tadzh. summ.] *WR 150: 78*
[E. N. Pavlovskii Inst., Acad. Sci. Tadzh. SSR, Dushanbe, USSR.]

Davis, Jeffrey A., and Robert J. Stoll, Jr. RUFFED GROUSE AGE AND SEX RATIOS IN OHIO. *J. Wildl. Manage.* 37(2): 133-141, 5 figs. Apr. 1973. *WR 150: 78*
[N.Y. Public Serv. Comm., Albany.]

Dourdine, A. D. [ACCLIMATIZATION OF THE ROCK PARTRIDGE *(ALECTORIS GRAECA)* IN CRIMEA AND IN TRANSCARPATHIA.] *Trans. X Int. Congr. Game Biol.* p. 359-362. 1973. In Russian with French, German and English summ. *WR 150: 78*

Flint, V. E. [BIOLOGICAL PARTICULARS OF CAPERCAILLIE IN CENTRAL RUSSIAN FORESTS SUBJECT TO INTENSIVE LOGGING.] *Trans. X Int. Congr. Game Biol.* p. 301-308. 1973. In Russian with French, German and English summ. *WR 150: 78*
[State Univ., Moscow, USSR.]

Gabrachanski, P., St. Dontchev, and L. Moutafov. [THE BARTAVELLE RED PARTRIDGES *(ALECTORIS GRAECA* MEISNER AND *ALECTORIS GRAECA CYPRIOTES* HARTERT) IN BULGARIA.] *Trans. X Int. Congr. Game Biol.* p. 363-368. 1973. In Russian with French, German and English summ. *WR 150: 79*
[Fac. Med. Veter., Sofia, Bulgaria.]

Gullion, G. W. EFFECT OF LOGGING UPON RUFFED GROUSE IN MINNESOTA FORESTS. *Minn. Agric. Exp. Stn. Misc. Rep.* 116: 32-34. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 79*

Hillman, Conrad N., and Warren W. Jackson. THE SHARP-TAILED GROUSE IN SOUTH DAKOTA. *S. Dak. Dep. Game Fish Parks Tech. Bull.* no. 3. viii + 62 p., illus. 1973. Copies available from S. Dak. Dep. Game, Fish & Parks, Pierre. *WR 150: 79*
Classification and general characteristics, distribution, life history, limiting factors, species management, habitat management, and habitat improvement assistance for *Pedioecetes phasianellus jamesii* are the major topics of discussion.

Klevezal', G. A., A. V. Kaller Salas, and S. P. Kirpichev. [DETERMINATION OF AGE IN BIRDS BY LAYERS IN THE PERIOSTEAL ZONE.] *Zool. Zh.* 51(11): 1726-1730, illus. 1972. [From Biol. Abstr. 56(4), 1973. In Russian with English summ.] *WR 150: 79*
[Inst. Dev. Biol., Acad. Sci. USSR, Moscow, USSR.] *"Tetrao urogallus, T. parvirostris,* and *Lyrurus tetrix."*

May, Terry A., and Clait E. Braun. GIZZARD STONES FROM ADULT WHITE-TAILED PTARMIGAN *(LAGOPUS LEUCURUS)* IN COLORADO. *Arct. Alp. Res.* 5(1): 49-57, illus. 1973. [From Biol. Abstr. 56(2), 1973.] *WR 150: 79*
[Univ. Colo., Boulder.]

McCourt, K. H., D. A. Boag, and D. M. Keppie. FEMALE SPRUCE GROUSE ACTIVITIES DURING LAYING AND INCUBATION. *Auk* 90(3): 619-623, 1 fig. July 1973. *WR 150: 79*
[Univ. Alberta, Edmonton, Alberta, Canada.] The incubation period for a clutch of spruce grouse *(Canachites canadensis franklinii)* was 25.5 days.--Courtesy/ Paul A. Stewart.

McGowan, Jerry D. FALL AND WINTER FOODS OF RUFFED GROUSE IN INTERIOR ALASKA. *Auk* 90(3): 636-640. July 1973. *WR 150: 79*
[Dept. Fish & Game, Fairbanks, Alaska.] Summary: Analysis of 123 ruffed grouse crops collected during fall and winter from interior Alaska showed rose hips, highbush cranberries, kinnikinnick berries, and blueberries to be dominant fall foods with a shift to buds occurring in October. Buds of quaking aspen and willow were the major winter foods. Ruffed grouse ate a more varied diet in fall than winter. While aspen and willow were dominant winter foods, only 30% of crops collected during that season contained a single food item.--Courtesy/ Paul A. Stewart.

Mottl, St. THE AGE STRATIFICATION IN THE PARTRIDGE *(PERDIX PERDIX* L.) AND PHEASANT *(PHASIANUS COLCHICUS* L.) POPULATIONS. *Trans. X Int. Congr. Game Biol.* p. 317-325. 1973. In English with French, German and Russian summ. *WR 150: 79*
[Zbraslav, Czechoslovakia.]

Petrov, P. UEBER DIE VERBREITUNG UND BESTANDSZAHL DES AUERWILDES IN BULGARIEN. [ON THE RANGE AND POPULATION OF CAPERCAILLIE IN BULGARIA.] *Z. Jagdwiss.* 18(2): 66-76, illus. 1972. [From Biol. Abstr. 56(1), 1973. In German with French and English summ.] *WR 150: 79*

Potts, R. FACTORS GOVERNING THE CHICK SURVIVAL RATE OF THE GREY PARTRIDGE *(PERDIX PERDIX). Trans. X Int. Congr. Game Biol.* p. 85-96, 5 figs. 1973. In English with French, German and Russian summ. *WR 150: 79*
[Game Conservancy, Fordingbridge, Hampshire, England.]

Rasmussen, Gerald, and Robert Brander. STANDARD METABOLIC RATE AND LOWER CRITICAL TEMPERATURE FOR THE RUFFED GROUSE. *Wilson Bull.* 85(2): 223-229, 2 figs. June 1973. *WR 150: 80*

[Univ. Mass., Amherst.] Standard metabolic rate for a grouse of average body weight (644 g) was 0.01 ml O_2 consumed-min^{-1}-g body weight $^{-1}$. There was a small change in the lower critical temperature from February (-6.0° C) to March (0.3° C); the LCT for all subclassifications combined was -0.3° C. Cloacal temperature averaged 41.5° C in 63 determinations on nine grouse.--From summ. Courtesy/ Paul A. Stewart.

Siopes, Thomas D., and Wilbor O. Wilson. DETERMINATION OF THE SEX OF CHUKAR PARTRIDGE AT HATCHING. *J. Wildl. Manage.* 37(2): 239-240, 1 fig. Apr. 1973. *WR 150: 80*

[Univ. Calif., Davis.]

Tournut, J., P. Montlaur-Ferradou, and M.-F. Perez. ETUDE DE QUELQUES NORMES BIOCHIMIQUES CHEZ LA PERDRIX ROUGE *ALECTORIS RUFA* L. [STUDY OF A FEW BLOOD BIOCHEMICAL NORMS OF THE PARTRIDGE *(ALECTORIS RUFA* L.).] *Trans. X Int. Congr. Game Biol.* p. 589-608, 6 figs. 1973. In French with German, Russian and English summ. *WR 150: 80*

[École Natl. Veter., Toulouse, France.]

Watson, Adam, and P. J. O'Hare. EXPERIMENTS TO INCREASE RED GROUSE STOCKS AND IMPROVE THE IRISH BOGLAND ENVIRONMENT. *Biol. Conserv.* 5(1): 41-44, 1 fig. Jan. 1973. *WR 150: 80*

[Nature Conservancy, Banchory, Kincardineshire, Scotland.] *"Lagopus lagopus scoticus."*

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DOVES & PIGEONS

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[Ramapo Coll. N.J., P.O. Box 542, Mahwah.] Abstract: Overt behavioral arousal was elicited by light stimulation in pigeon hatchlings. The sensitivity is not mediated via the retina or by direct stimulation of the brain, but rather it is most likely a dermal sensitivity.

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[Rock Valley Coll., Rockford, Ill.] Adult mourning doves *(Zenaidura macroura)*, particularly males, withstood physiological stresses of food deprivation and low temperatures better than juveniles, particularly females.--Courtesy/ Paul A. Stewart.

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[Forschungstelle Jagkunde & Wildshadenverhütung, Bonn-Beuel, Germany.] *"Columba palumbus."*

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[Northern Prairie Wildl. Res. Cent., Jamestown, N. Dak.] *"Anas platyrhynchos."*--Courtesy/ Paul A. Stewart.

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[Wis. Dep. Nat. Resour., Madison.]

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Contents: Everyday life, Social behaviour, Spring migration, On the breeding grounds, Nesting biology, The brood season, Fall migration, Buffleheads in winter, The bufflehead as a game bird, Foods of buffleheads, Distribution, Populations, Factors affecting numbers and distribution, Systematics, evolution, and adaptation, and The bufflehead now and in the future.

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[Univ. Komenskeho, Bratislava, Czechoslovakia.]

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[Bur. Sport Fisheries & Wildl., Victoria, Tex.] *"Dendrocygna bicolor."*

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[Hope Coll., Holland, Mich.] *"Anas discors."*--Courtesy/ Paul A. Stewart.

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[Tokyo Univ. Fish., Tokyo, Japan.] The meaning of each scientific name constructed by derivation from Latin, New Latin, Greek, etc. is given. This is an annotated list for the explanation of all the scientific names applied in the family Anatidae of the World.

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[Queensland Dep. Primary Ind., Townsville, Queensland, Australia.]

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[Northern Prairie Wildl. Res. Cent., Jamestown, N. Dak.]

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[Northern Prairie Wildl. Res. Cent., Jamestown, N. Dak.]

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[Tex. Tech Univ., Lubbock.] Courtesy/ Paul A. Stewart.

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Starkey, Edward Evan. THE ROLE OF VOCALIZATIONS IN FAMILIAL BEHAVIOR OF WATERFOWL. *Ph.D. thesis, Wash. State Univ.* 110 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 33(12), 1973.] *WR 150: 83*

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[Cent. Ecol. Camargue, Le Sambuc, France.]

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[Game & Fresh Water Fish Comm., Gainesville, Fla.] Common loons *(Gavia immer)* were observed starting their northward migratory flights in mornings before mid-forenoon, suggesting that this is their usual starting time.--Courtesy/ Paul A. Stewart.

SWANS & GEESE

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[Pembroke Coll., Cambridge, England.] *"Cygnus cygnus."*

Fabricius, Eric, and Tommy Radesater. AGGRESSIVA ELEMENT I KACKLINGS-CEREMONINS ONTOGENI HOS KANADAGAS: EN PRELIMINAR RAPPORT. [AGONISTIC ELEMENTS IN THE ONTOGENY OF THE CACKLING CEREMONY IN THE CANADA GOOSE: A PROGRESS REPORT.] *Zool. Revy* 33(3/4): 60-69, illus. 1971. [From Biol. Abstr. 56(4), 1973. In Swedish with English summ.] *WR 150: 83*
[Stockholm Univ., Stockholm, Sweden.]

Fjetland, C. A. LONG-TERM RETENTION OF PLASTIC COLLARS ON CANADA GEESE. *J. Wildl. Manage.* 37(2): 176-178. Apr. 1973. *WR 150: 84*
[Lacreek Natl. Wildl. Refuge, Martin, S. Dak.] Abstract: Analysis of retrapped Canada geese *(Branta canadensis maxima)* at Seney National Wildlife Refuge showed that only 30 percent of the birds retained flexible plastic collars after 6 years. Retention was higher among females than among males. Fading, brittleness, and loss of the number-letter combination of the collars are discussed.

Gibson, L. W., and I. O. Buss. REACTIONS OF CANADA GEESE TO RESERVOIR IMPOUNDMENT ON THE SNAKE RIVER IN WASHINGTON. *Northwest Sci.* 46(4): 301-318, illus. 1972. [From Biol. Abstr. 56(1), 1973.] *WR 150: 84*
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[Univ. Helsinki, Helsinki, Finland.]

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[Univ. Helsinki, Helsinki, Finland.]

Hewson, Raymond. CHANGES IN A WINTER HERD OF WHOOPER SWANS AT A BANFF LOCH. *Bird Study* 20(1): 41-49, 4 figs. Mar. 1973. *WR 150: 84*
[Dep. Agric. & Fisheries for Scotland, Blackhall, Banchory, Kincardineshire, Scotland.] Summary: Whooper swans on migration were counted weekly at Loch Park, Banffshire, northeast Scotland from 1955 to 1967. Up to 200 gathered each autumn, increasing from 1955 to 1958 and decreasing until by 1968 few swans appeared. Changes in numbers were associated with differences in migratory behaviour. Swans stayed longer when numbers were high. Brood size declined significantly over the period 1953-1967. A possible explanation of the decline in the wintering population is that the habitat is no longer suitable owing to the growth of trees (8 m. high) along the banks.

Hudec, Karel, and Zdenek Kux. PASSAGE MIGRATION OF THE GREYLAG GOOSE *(ANSER ANSER)* THROUGH SOUTHERN MORAVIA. *Zool. Listy* 21(3): 245-261, illus. 1972. [From Biol. Abstr. 56(1), 1973.] *WR 150: 84*
[Czech. Acad. Sci., Kvetna 8, Brno, Czechoslovakia.]

Prevett, John Paul. FAMILY BEHAVIOR AND AGE DEPENDENT BREEDING BIOLOGY OF THE BLUE GOOSE, *ANSER CAERULESCENS*. *Ph.D. thesis, Univ. Western Ontario.* 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(4), 1973. To obtain a microfilm copy order directly from the National Library of Canada at Ottawa. A reference copy of this dissertation is available at the D. B. Weldon Library, University of Western Ontario.] *WR 150: 84*

Ryder, John P., and Fred Cooke. ROSS' GEESE NESTING IN MANITOBA. *Auk* 90(3): 691-692. July 1973. *WR 150: 84*
[Lakehead Univ., Thunder Bay 'P', Ontario, Canada.] Ross' geese *(Chen caerulescens)* were found nesting 25 miles east of Churchill, constituting the southernmost nesting for this species.--Courtesy/ Paul A. Stewart.

Soikkeli, Martti. DECREASE IN NUMBERS OF MIGRATING LESSER WHITE-FRONTED GEESE, *ANSER ERYTHROPUS*, IN FINLAND. *Riistatieteellisiä Julk.* 33. p. 27-30. 1973. In English. *WR 150: 84*
[Univ. Turku, Turku, Finland.]

Sulgostowska, Teresa. TREMATODES OF THE MUTE SWAN *CYGNUS OLOR* (GM.) FROM CENTRAL AND NORTHERN REGIONS OF POLAND. *Acta Parasitol. Pol.* 20(40-52): 473-481, illus. 1972. [From Biol. Abstr. 56(3), 1973. In English with Polish summ.] *WR 150: 86*

Willey, Charles H., and Bernard F. Halla. MUTE SWANS OF RHODE ISLAND. *R.I. Dep. Nat. Resour. Wildl. Pam.* no. 8. 47 p., illus. Apr. 1972. *WR 150: 85*
[Vt. Fish & Game Dep., RFD #2, Colebrook, N.H.] Major topics of discussion: Investigational procedures, Physical characteristics, Habitat use and swan distribution, Breeding biology, Population dynamics, Population size, Movement behavior, Food habits, Social and economic problems, Management, and Recommendations.

SHOREBIRDS, MARSH BIRDS & THEIR ALLIES

Bates, Bert H., Jr., and Thomas G. Meade. HELMINTH PARASITES OF THE KING RAIL, *RALLUS ELEGANS* AUD., AND CLAPPER RAIL, *RALLUS LONGIROSTRIS* BODDAERT, OF THE BOLIVAR PENINSULA, TEXAS. *Proc. Helminthol. Soc. Wash.* 39(1): 146-147. 1972. [From Biol. Abstr. 55(12), 1973.] *WR 150: 85*
[Sam Houston State Univ., Huntsville, Tex.]

Belton, William. WILLETS IN SOUTHERN BRAZIL. *Auk* 90(3): 680. July 1973. *WR 150: 85*
[Caixa Postal 119, Gramado, Rio Grande do Sul, Brazil.] *"Catoptrophorus semipalmatus."*--Courtesy/ Paul A. Stewart.

Bush, Albert O. AN ECOLOGICAL ANALYSIS OF THE HELMINTH PARASITES OF THE WHITE IBIS IN FLORIDA. *M.S. thesis, Univ. Fla.* 115 p. 1973. *WR 150: 85*
An examination of 140 white ibis *(Eudocimus albus)* collected from four Florida localities revealed 44 spp. of helminth parasites of which 22 were trematodes, two were cestodes, 19 were nematodes and one was an acanthocephalan. Forty of the species represent new host records, 17 are new locality records, and 11 represent either new genera or new species.--From summ. Courtesy/ Donald J. Forrester.

Dickerman, Robert W. THE LEAST BITTERN IN MEXICO AND CENTRAL AMERICA. *Auk* 90(3): 689-691. July 1973. *WR 150: 85*
[Cornell Univ. Med. Coll. New York, N.Y.] Taxonomic considerations of *Ixobrychus exilis.*--Courtesy/ Paul A. Stewart.

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Popular account. "After 20 years in the United States, the cattle egret has become a desirable alien and a fascinating addition to Louisiana."

Duncan, Robert A. VENTRILOQUISM IN A WILSON'S PLOVER. *Auk* 90(3): 680. July 1973. *WR 150: 85*
[614 Fairpoint Dr., Gulf Breeze, Fla.] *"Charadrius wilsonia."*--Courtesy/ Paul A. Stewart.

Fadat, C. EXISTENCE DE DEUX GROUPES DE BÉCASSE DES BOIS *SCOLOPAX RUSTICOLA* L. CONSÉQUENCE SUR LA LÉGISLATION DE SA CHASSE EN FRANCE. [TWO GROUPS OF WOODCOCKS *(SCOLOPAX RUSTICOLA* L.) / CONSEQUENCES ON FRENCH GAME LAWS.] *Trans. X Int. Congr. Game Biol.* p. 639-649, 6 figs. 1973. In French with German, Russian and English summ. *WR 150: 85*
[Montpeyroux, France.]

Flegg, J. J. M., and David E. Glue. A WATER RAIL STUDY. *Bird Study* 20(1): 69-79, 6 figs. Mar. 1973. *WR 150: 85*
[British Trust Ornithol., Tring, Hertfordshire, England.] *"Rallus aquaticus."*

Haucke, Harry H., and William H. Kiel, Jr. JABIRU IN SOUTH TEXAS. *Auk* 90 (3): 675-676. July 1973. *WR 150: 86*
[Tex. A&M Univ., College Station.] *"Jabiru mycteria."*--Courtesy/ Paul A. Stewart.

Jehl, Joseph R., Jr. BREEDING BIOLOGY AND SYSTEMATIC RELATIONSHIPS OF THE STILT SANDPIPER. *Wilson Bull.* 85(2): 114-147, 8 figs. + 1 pl. June 1973. *WR 150: 86*
[Nat. Hist. Mus., P.O. Box 1390, San Diego, Calif.] The following are discussed as they relate to *Micropalama himantopus*: distribution, habitat, arrival, vocalization, territoriality, courtship, pair formation, nesting, hatching, dispersal, departure, productivity, mortality, feeding, weights, and systematics.--Courtesy/ Paul A. Stewart.

Johnson, Douglas H., and Robert E. Stewart. RACIAL COMPOSITION OF MIGRANT POPULATIONS OF SANDHILL CRANES IN THE NORTHERN PLAINS STATES. *Wilson Bull.* 85 (2): 148-162, 3 figs. June 1973. *WR 150: 86*
[Northern Prairie Res. Cent., Jamestown, N. Dak.] *"Grus canadensis."*--Courtesy/ Paul A. Stewart.

Johnson, Robert Walter. OBSERVATION ON THE ECOLOGY AND MANAGEMENT OF THE NORTHERN CLAPPER RAIL, *RALLUS LONGIROSTRIS CREPITANS* GMELIN IN NASSAU COUNTY, NEW YORK. *Ph.D. thesis, Cornell Univ.* 239 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(2), 1973.] *WR 150: 86*

Kalivodova, Eva. PRISPEVOK K EKOLOGII LYSKY CIERNEJ *(FULICA ATRA* L.*)*. [SOME NOTES ON THE ECOLOGY OF *FULICA ATRA* L.] *Biologia* (Bratislava) 27(11): 881-885, illus. 1972. [From Biol. Abstr. 55(12), 1973. In Slovak with Russian and English summ.] *WR 150: 86*
[Ustav Biol. Krajiny, Slov. Akad. Vied, Bratislava, Czechoslovakia.]

Keve, Andras. A BALATON GUVAT-FELEI. [RALLIDAE OF THE LAKE BALATON REGION.] *Allattani Kozl.* 59(1-4): 67-85. 1972. [From Biol. Abstr. 56(1), 1973. In Hungarian with German summ.] *WR 150: 86*
[Madartani Intez., Budapest, Hungary.]

Kushlan, James A. WHITE IBIS NESTING IN THE FLORIDA EVERGLADES. *Wilson Bull.* 85(2): 230-231. June 1973. *WR 150: 86*
[Univ. Miami, Coral Gables, Fla.] A nesting colony of white ibises *(Eudocimus albus)* was located in a continuous marsh rather than on an island. At its peak it contained 17,800 nests.--Courtesy/ Paul A. Stewart.

Kushlan, James A. LEAST BITTERN NESTING COLONIALLY. *Auk* 90(3): 685-686. July 1973. *WR 150: 86*
[Univ. Miami, Coral Gables, Fla.] Eleven active nests of least bitterns *(Ixobrychus exilis)* were located in a sawgrass strand covering 260m^2.--Courtesy/ Paul A. Stewart.

LaBastille, Anne, Jose Ovidio, and Edgar Bauer. CENSUS IN APRIL 1972 OF THE ATITLÁN GREBE *(PODILYMBUS GIGAS)*, GUATEMALA. *Biol. Conserv.* 5(1): 62-63. Jan. 1973. *WR 150: 86*
[c/o Ecology Program, Smithsonian Inst., Washington, D.C.] The 1972 estimate of 187 birds represents an increase of 44% over the 1969 estimate and a nearly 134% increase from the lowest point in the species numbers in 1964-1965.

Mac Cabe, R. A., and M. Brackbill. PROBLEMS IN DETERMINING SEX AND AGE OF EUROPEAN WOODCOCK. *Trans. X Int. Congr. Game Biol.* p. 619-637, 7 figs. 1973. In English with French, German and Russian summ. *WR 150: 86*
[Univ. Wis., Madison.]

Miller, Richard S., George S. Hochbaum, and Daniel B. Botkin. A SIMULATION MODEL FOR THE MANAGEMENT OF SANDHILL CRANES. *Yale Univ. Sch. For. Bull.* 80. p. 1-49, illus. 1972. [From Biol. Abstr. 55(12), 1973.] *WR 150: 87*
[Yale Univ., New Haven, Conn.]

Oring, Lewis W. SOLITARY SANDPIPER EARLY REPRODUCTIVE BEHAVIOR. *Auk* 90(3): 652-663, 4 figs. July 1973. *WR 150: 87*
[Univ. N. Dak., Grand Forks.] Hostile behavior, sexual behavior, nesting behavior before incubation, and interspecific interactions of *Tringa solitaria*.--Courtesy/ Paul A. Stewart.

Pence, Danny B. HYPOPI (ACARINA: HYPODERIDAE) FROM THE SUBCUTANEOUS TISSUES OF THE WOOD IBIS, *MYCTERIA AMERICANA* L. *J. Med. Entomol.* 10(3): 240-243, 10 figs. 20 June 1973. *WR 150: 87*
[Tex. Tech Univ. School Med., Lubbock.]

Pienkowski, Michael W., and C. D. T. Minton. WING LENGTH CHANGES OF THE KNOT WITH AGE AND TIME SINCE MOULT. *Bird Study* 20(1): 63-68, 3 figs. Mar. 1973. *WR 150: 87*
[Univ. East Anglia, Norwich, Norfolk, England.] *"Calidris canutus."*

Tomlinson, Roy E., and Richard L. Todd. DISTRIBUTION OF TWO WESTERN CLAPPER RAIL RACES AS DETERMINED BY RESPONSES TO TAPED CALLS. *Condor* 75(2): 177-183, 1 fig. Summer 1973. *WR 150: 87*
[Patuxent Wildl. Res. Cent., Tucson, Ariz.] *"Rallus longirostris yumanensis* and *R. l. rhizophorae."*--Courtesy/ Paul A. Stewart.

Tuck, Leslie M. THE SNIPES: A STUDY OF THE GENUS *CAPELLA*. *Canadian Wildl. Serv. Monog. Ser.* no. 5. 432 p., 92 figs. 1972. Price $7.25. *WR 150: 87*
Contents: Goat of the bogs, Morphology, Taxonomy and geographical distribution, Breeding habitat and territories, Spring migration, Pair-formation and mating behaviour, The nest, eggs, and incubation, The care and growth of the chick, Feeding habits and food, Fall migration, Winter habitat, Parasites and natural mortality, Plumages, moults, and weights, Population structure and hunting, and Management.

Wilson, John. WADER POPULATIONS OF MORECAMBE BAY, LANCASHIRE. *Bird Study* 20 (1): 9-23, 1 fig. Mar. 1973. *WR 150: 87*
[Myers Farm Silverdale, Carnforth, Lancashire, England.]

SEABIRDS & THEIR ALLIES

Bakke, Tor A. FISKEMAKENES OG HETTEMAKENES NAERING PA SOLA FLYSTASJON I ROGALAND. [FOOD OF THE COMMON GULL, *LARUS CANUS* L., AND THE BLACK-HEADED GULL, *LARUS RIDIBUNDUS* L., AT SOLA AIRPORT, ROGALAND COUNTY.] *Fauna* (Oslo) 25(3): 197-204. 1972. [From Biol. Abstr. 55(12), 1973. In Norwegian with English summ.] *WR 150: 87*

Bakke, Tor A. *REIGHARDIA STERNAE* (DIESING, 1864) WARD, 1899 [PENTASTOMIDA: CEPHALOBAENIDA] FROM THE COMMON GULL *(LARUS CANUS* L.) IN A NORWEGIAN LOCALITY. *Norw. J. Zool.* 20(4): 273-277, illus. 1972. [From Biol. Abstr. 56(2), 1973.] *WR 150: 87*
[Zool. Mus., Oslo, Norway.]

Belopolskii, L. O., L. E. Aumees, G. P. Goryainova, N. I. Milovanova, I. A. Petrova, and N. I. Polonik. [SOME CHARACTERISTICS OF THE REPRODUCTION OF *LARUS CANUS* (L.) IN THE BARENTS, WHITE AND BALTIC SEAS.] *Ekologiya* 3(3): 67-71, illus. 1972. [From Biol. Abstr. 55(12), 1973. In Russian.] *WR 150: 87*
[Kaliningrad State Univ., Kaliningrad, USSR.]

Bohlen, H. David. FIRST SPECIMEN OF LAUGHING GULL FOR ILLINOIS. *Wilson Bull.* 85(2): 233. June 1973. *WR 150: 88*
[Ill. State Mus., Springfield.] *"Larus atricilla."*--Courtesy/ Paul A. Stewart.

Burleigh, Thomas D. FIRST ARCTIC TERN RECORDED IN IDAHO. *Auk* 90(3): 693. July 1973. *WR 150: 88*
[1242 Sylvan Rd., Monterey, Calif.] *"Sterna paradisaea."*--Courtesy/ Paul A. Stewart.

Coulter, Malcolm C., and Robert W. Risebrough. SHELL-THINNING IN EGGS OF THE ASHY PETREL *(OCEANODROMA HOMOCHROA)* FROM THE FARALLON ISLANDS. *Condor* 75(2): 254-255. Summer 1973. *WR 150: 88*
[Point Reyes Bird Observatory, Mesa Rd., Bolinas, Calif.] Shells of eggs of ashy petrels collected during 1969-70 were significantly thinner than those of eggs collected in the period 1890 to 1924. Further thinning would pose a threat to survival of the species.--Courtesy/ Paul A. Stewart.

Courtney, Charles H. HELMINTH PARASITES OF THE BROWN PELICAN IN FLORIDA AND LOUISIANA. *M.S. thesis, Univ. Fla.* 78 p. 1973. *WR 150: 88*
Examination of 113 brown pelicans *(Pelicanus occidentalis)* from Florida and Louisiana revealed 30 spp. of helminth parasites including 13 spp. of trematodes, four spp. of cestodes, 11 spp. of nematodes, and two spp. of acanthocephalans. Seven spp. were previously undescribed, and 11 represent new hosts records for the brown pelican.--From summ. Courtesy/ Donald J. Forrester.

Davydov, A. F. [SEASONAL CHANGES IN ENERGY METABOLISM AND THERMOREGULATION IN RESTING BLACK-HEADED GULLS.] *Ekologiya* 2(5): 59-63, illus. 1971. [From Biol. Abstr. 55(12), 1973. In Russian.] *WR 150: 88*
[I. P. Pavlov Inst. Physiol., Acad. Sci. USSR, Leningrad, USSR.] *"Larus ridibundus."*

Diamond, A. W. NOTES ON THE BREEDING BIOLOGY AND BEHAVIOR OF THE MAGNIFICENT FRIGATEBIRD. *Condor* 75(2): 200-209, 9 figs. Summer 1973. *WR 150: 88*
[Cousin Island, Seychelles, Indian Ocean.] *"Fregata magnificens."* The following are discussed: Population, nesting, laying season, chick growth, sex ratio of chicks, twins, division of labor in breeding pair, food, calls, courtship display, and feeding young.--Courtesy/ Paul A. Stewart.

Dunn, Euan K. ROBBING BEHAVIOR OF ROSEATE TERNS. *Auk* 90(3): 641-651, 6 figs. July 1973. *WR 150: 88*
[Edward Grey Inst., S. Parks Rd., Oxford, England.] Roseate terns *(Sterna dougallii)* robbed others of their species as well as individuals of other species of terns. Sandwich terns *(S. sandvicensis)* were most frequently robbed in May; later in the season common terns *(S. hirundo)* and arctic terns *(S. paradisaea)* were the main hosts. The number of terns parasitized was directly correlated with the number of available hosts. Robbing success was inversely correlated with the length of the fish being carried, terns with large fish being more successful in resisting attack. Birds carrying fish about 10 cm long were more often attacked than birds with larger or smaller fish.--Courtesy/ Paul A. Stewart.

Fordham, R. A., and R. M. Cormack. MORTALITY AND POPULATION CHANGE OF DOMINICAN GULLS IN WELLINGTON, NEW ZEALAND. *J. Anim. Ecol.* 39(1): 13-27. Feb. 1970. *WR 150: 88*
[Massey Univ., Palmerston North, New Zealand.] *"Larus dominicanus."*

Gochfeld, Michael. ENCRUSTED WINGS CAUSING FLIGHTLESSNESS IN YOUNG TERNS. *Wilson Bull.* 85(2): 236-237. June 1973. *WR 150: 88*
[Am. Mus. Nat. Hist., New York, N.Y.] Wing feathers of young common terns *(Sterna hirundo)* were encrusted with excrement.--Courtesy/ Paul A. Stewart.

Gress, Franklin, Robert W. Risebrough, Daniel W. Anderson, Lloyd F. Kiff, and Joseph R. Jehl, Jr. REPRODUCTIVE FAILURES OF DOUBLE-CRESTED CORMORANTS IN SOUTHERN CALIFORNIA AND BAJA CALIFORNIA. *Wilson Bull.* 85(2): 197-208, 2 figs. June 1973. *WR 150: 89*

[Univ. Calif., P.O. Box 247, Bodega Bay, Calif.] Associated with discontinuance of the dumping of wastes arising from the manufacturing of DDT into sewage systems, an increase was found in reproductive success of double-crested cormorants *(Phalacrocorax auritus)*.--Courtesy/ Paul A. Stewart.

Hays, Helen, Euan Dunn, and Alan Poole. COMMON, ARCTIC, ROSEATE, AND SANDWICH TERNS CARRYING MULTIPLE FISH. *Wilson Bull.* 85(2): 233-236, 1 fig. June 1973. *WR 150: 89*

[Am. Mus. Nat. Hist., New York, N.Y.] As many as nine fish were carried in the bill at one time.--Courtesy/ Paul A. Stewart.

Impekoven, Monica. THE RESPONSE OF INCUBATING LAUGHING GULLS *(LARUS ATRICILLA L.)* TO CALLS OF HATCHING CHICKS. *Behaviour* 46(1-2): 94-113, 5 figs. 1973. In English with German summ. *WR 150: 89*

[Rutgers Univ., Newark, N.J.]

Keskpaik, Yuri, and Peet Khorma. [BODY TEMPERATURE AND HEART RATE OF FLYING SEA-GULLS *(LARUS M. MARINUS L.)*.] *Eesti NSV Tead. Akad. Toim. Biol.* 21(2): 109-116, illus. 1972. [From Biol. Abstr. 55(11), 1973. In Russian with Estonian and English summ.] *WR 150: 89*

[Inst. Zool. Bot., Acad. Sci. Estonian SSR, Tartu, USSR.]

McDaniel, James W. VAGRANT ALBATROSSES IN THE WESTERN NORTH ATLANTIC AND GULF OF MEXICO. *Am. Birds* 27(3): 563-565, 2 figs. June 1973. *WR 150: 89*

[Adrian Coll., Adrian, Mich.] "In conclusion, the available evidence suggests that albatrosses from the southern hemisphere are occurring in the North Atlantic with increasing frequency. Whether this is due to an actual increase in birds or to an increase in birders remains to be seen."

Nystrom, Mats. ON THE QUANTIFICATION OF PECKING RESPONSES IN YOUNG GULLS *(LARUS ARGENTATUS)*. *Z. Tierpsychol.* 30(1): 36-44, illus. 1972. [From Biol. Abstr. 56(1), 1973. In English with German summ.] *WR 150: 89*

[Lund Univ., Lund, Sweden.]

Oelke, Hans, and Fritz Steiniger. *SALMONELLA* IN ADÉLIE PENGUINS *(PYGOSCELIS ADELIAE)* AND SOUTH POLAR SKUAS *(CATHARACTA MACCORMICKI)* ON ROSS ISLAND, ANTARCTICA. *Avian Dis.* 17(3): 568-573, 1 fig. July-Sept. 1973. *WR 150: 89*

[State Mus. of Lower Saxony, Hannover, Germany.]

Pence, Danny B., and Charles H. Courtney. THE HYPOPI (ACARINA: HYPODERIDAE) FROM THE SUBCUTANEOUS TISSUES OF THE BROWN PELICAN, *PELECANUS OCCIDENTALIS CAROLINENSIS* GMELIN. *J. Parasitol.* 59(4): 711-718, 19 figs. Aug. 1973. *WR 150: 89*

[Tex. Tech Univ. School Med., Lubbock.]

Pulich, Warren M., Sr., and Warren M. Pulich, Jr. FIRST BROWN BOOBY SPECIMEN FROM TEXAS. *Auk* 90(3): 683-684. July 1973. *WR 150: 89*

[Univ. Dallas Station, Irving, Tex.] *"Sula leucogaster."*--Courtesy/ Paul A. Stewart.

Quigley, Raymond J. FIRST RECORD OF SOOTY SHEARWATER FOR ARIZONA. *Auk* 90 (3): 677. July 1973. *WR 150: 89*

[Western Foundation Vertebr. Zool., Los Angeles, Calif.] *"Puffinus griseus."* --Courtesy/ Paul A. Stewart.

Scott, James Michael. RESOURCE ALLOCATION IN FOUR SYNTOPIC SPECIES OF MARINE DIVING BIRDS. *Ph.D. thesis, Oreg. State Univ.* 107 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(3), 1973.] *WR 150: 89*

"Brandt's cormorant, pelagic cormorant, common murre, and pigeon guillemot."

SEABIRDS & THEIR ALLIES--Continued

Shallenberger, Robert Jenkins. BREEDING BIOLOGY, HOMING BEHAVIOR, AND COMMUNICATION PATTERNS OF THE WEDGE-TAILED SHEARWATER, *PUFFINUS PACIFICUS CHLORORHYNCHUS*. *Ph.D. thesis, Univ. Calif.* (Los Angeles). 438 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(1), 1973.] *WR 150: 90*

Spellerberg, Ian F. BREEDING BEHAVIOUR OF THE MCCORMICK SKUA *CATHARACTA MACCORMICKI* IN ANTARCTICA. *Ardea* 59(3/4): 189-230, illus. 1971. [From Biol. Abstr. 56(4), 1973. In English with Dutch summ.] *WR 150: 90*
[Max Planck Inst. Verhaltensphysiol., Erling-Andechs, Germany.]

Voipio, Paavo. SILBERMOEWEN DER *LARUS ARGENTATUS CACHINNANS*: GRUPPE ALS BESIEDLER DES BALTISCHEN RAUMES. [*LARUS ARGENTATUS CACHINNANS* AS A COLONIZER OF THE BALTIC AREA.] *Ann. Zool. Fenn.* 9(3): 131-136. 1972. [From Biol. Abstr. 56(2), 1973. In German with English summ.] *WR 150: 90*
[Univ. Turku, Turku, Finland.]

HAWKS & OWLS

Ant, Herbert. ZUM VORKOMMEN VON GREIFVOEGELN IN WESTFALEN IN FRUEHERER ZEIT. [THE OCCURRENCE OF BIRDS OF PREY IN WESTPHALIA IN FORMER TIMES.] *Nat. Heimat* 32(1): 22-25. 1972. [From Biol. Abstr. 55(12), 1973. In German.] *WR 150: 90*
[Wielandst. 17, Hamm, Germany.] A study published in the "Deutsche Jaegerzeitung" in 1919 makes allusions to the presence in Westphalia, W. Germany of breeding sites of the duck hawk *Falco peregrinus peregrinus*. The species has since completely disappeared. Currently the bird of prey population is made of sparrow hawks and several species of kites and owls. The eagle owl has likewise disappeared from Westphalia.

Belopol'skii, L. O. [ECOLOGICAL CHARACTERISTICS IN *ACCIPITER NISUS* (L.) MIGRATIONS.] *Ekologiya* 3(2): 58-63. 1972. [From Biol. Abstr. 55(12), 1973. In Russian.] *WR 150: 90*
[Kaliningrad Univ., Kaliningrad, USSR.]

Brown, L. H., and T. J. Cade. AGE CLASSES AND POPULATION DYNAMICS OF THE BATELEUR AND AFRICAN FISH EAGLE. *Ostrich* 43(1): 1-16, illus. 1972. [From Biol. Abstr. 56(4), 1973.] *WR 150: 90*
[P.O. Box 24916, Karen, Kenya.] *"Terathopius ecaudatus* and *Haliaetus vocifer."*

Chambers, P. L., and D. W. Norris. THE PRESENT STATUS OF THE PEREGRINE FALCON IN IRELAND. *Trans. X Int. Congr. Game Biol.* p. 227-237, 3 figs. 1973. In English with French, German and Russian summ. *WR 150: 90*
[Trinity Coll., Dublin, Ireland.]

Cheylan, G. LE CYCLE ANNUEL D'UNE COUPLE D'AIGLES DE BONELLI *HIERAAETUS FASCIATUS* (VIELLOT). [THE YEARLY CYCLE OF A PAIR OF BONELLI EAGLES *HIERAAETUS FASCIATUS* (VIELLOT).] *Alauda* 40(3): 214-234, illus. 1972. [From Biol. Abstr. 55(12), 1973. In French.] *WR 150: 90*
[6 Rue Littera, Aix-en-Provence, France.]

Deppe, Hans-Joachim. EINIGE VERHALTENSBEOBACHTUNGEN AN EINEM DOPPELHORST VON SEEADLER *(HALIAEETUS ALBICILLA)* UND WANDER FALKE *(FALCO PEREGRINUS)* IN MECKLENBURG. [SOME OBSERVATIONS ON AN AERIE OF WHITE-TAILED EAGLE AND PEREGRINE FALCON.] *J. Ornithol.* 113(4): 440-444. 1972. [From Biol. Abstr. 56(4), 1973. In German with English summ.] *WR 150: 90*
[Kudowast. 1 A, Berlin, Germany.]

Erkinaro, Eino. PRECISION OF THE CIRCADIAN CLOCK IN TENGMALM'S OWL, *AEGOLIUS FUNEREUS* (L.), DURING VARIOUS SEASONS. *Aquilo Ser. Zool.* 13: 48-52, 2 figs. 1972. *WR 150: 90*
[Univ. Oulu, Oulu, Finland.] Abstract: The precision of the four parameters of the circadian clock (the relationship between onset of activity and sunset,

between end of activity and sunrise, and between midpoint of activity and midnight, length of activity-time) in a Tengmalm's owl *(Aegolius funereus)* reflects seasonal changes in natural light-dark-cycle. The precision is determined using standard deviation (S.D.) around the ten-day mean value. The changes are parallel for all four parameters. The circadian clock is most precise in spring and autumn and has the lowest precision in winter and summer. Various reasons are discussed and the hypothesis is advanced that the owl's response in terms of phase-position -- indirectly indentifiable with spontaneous frequency -- to the averaged or summed intensity of illumination in the whole 24 hour period determines the precision during the year.

Freer, Valerie M. SPARROW HAWK PREDATION ON BANK SWALLOWS. *Wilson Bull.* 85 (2): 231-233. June 1973. *WR 150: 91*
[Sullivan County Community Coll., Loch Sheldrake, N.Y.] A sparrow hawk *(Falco sparverius)* preyed heavily on flying young bank swallows *(Riparia riparia)* of one colony.--Courtesy/ Paul A. Stewart.

Gargett, Valerie. BLACK EAGLES OF THE MATOPOS. *Afr. Wildl.* 26(1): 12-17. 1972. [From Biol. Abstr. 56(1), 1973.] *WR 150: 91*
[Bulawayo, Rhodesia.] *"Aquila verreauxi."*

Hamerstrom, Frances, and Deann De La Ronde Wilde. CRUISING RANGE & ROOSTS OF ADULT HARRIERS. *Inland Bird Banding News* 45(4): 123-127, illus. July-Aug. 1973. *WR 150: 91*
[Plainfield, Wis.] *"Circus cyaneus hudsonius."*

Howell, J. C. THE 1971 STATUS OF 24 BALD EAGLE NEST SITES IN EAST CENTRAL FLORIDA. *Auk* 90(3): 678-680. July 1973. *WR 150: 91*
[Univ. Tenn., Knoxville.] The state of occupancy of bald eagle *(Haliaeetus leucocephalus)* nests was lowest in 1971 of any year since 1935.--Courtesy/ Paul A. Stewart.

Marti, Carl D. FOOD CONSUMPTION AND PELLET FORMATION RATES IN FOUR OWL SPECIES. *Wilson Bull.* 85(2): 178-181. June 1973. *WR 150: 91*
[Weber State Coll., Ogden, Utah.] Mean food consumption per day was 4.70% body weight for the great horned owl *(Bubo virginianus)*, 12.7% for the long-eared owl *(Asio otus)*, 15.9% for the burrowing owl *(Speotyto cunicularia)*, and 10.1% for the barn owl *(Tyto alba)*. Average pellet rates per day were 1.2 for the great horned owl, 1.4 for the long-eared owl, 1.5 for the burrowing owl, and 1.7 for the barn owl.--Courtesy/ Paul A. Stewart.

Martin, Dennis J. A SPECTROGRAPHIC ANALYSIS OF BURROWING OWL VOCALIZATIONS. *Auk* 90(3): 564-578, 5 figs. July 1973. *WR 150: 91*
[Utah State Univ., Logan.] Burrowing owls *(Speotyto cunicularia)* have a repertoire of at least 17 vocalizations, including a rattlesnake-like call presumably developed for defense.--Courtesy/ Paul A. Stewart.

Martirosyan, B. A., B. O. Geilikman, and A. A. Amiryan. [DATA ON THE NUTRITION OF THE EARED OWL IN ARMENIA.] *Biol. Zh. Arm.* 25(3): 93-96, illus. 1972. [From Biol. Abstr. 56(2), 1973. In Russian with Armenian summ.] *WR 150: 91*
[Inst. Zool., Acad. Sci. Arm. SSR, Yerevan, USSR.] *"Asio otus otus."*

Mueller, Helmut C., and Daniel D. Berger. THE DAILY RHYTHM OF HAWK MIGRATION AT CEDAR GROVE, WISCONSIN. *Auk* 90(3): 591-596, 1 fig. July 1973. *WR 150: 91*
[Univ. N.C., Chapel Hill.] Fall migration of accipiters peaks in early morning, that of buteos in late morning, that of falcons in early afternoon. Ospreys show no peak.--Courtesy/ Paul A. Stewart.

Page, Gary. DIET OF SHORT-EARED OWLS ON BOLINAS LAGOON. *Point Reyes Bird Observatory Newsl.* no. 26. p. 5-6. June 1973. *WR 150: 91*
Two years' data based on pellets.

Rosen, Merton N., Karen D'Amico, and Edward J. O'Neill. FIRST RECORD OF A GOLDEN EAGLE DEATH DUE TO AVIAN CHOLERA. *Calif. Fish Game* 59(3): 209-210. July 1973. *WR 150: 92*
[Calif. Dep. Fish & Game, Sacramento.] *"Aquila chrysaetos."*

Saint Girons, Marie-Charlotte. LA RECONNAISSANCE DES PROIES CONTENUES DANS LES PELOTES DE RAPACES EN FRANCE, BELGIQUE, PAY-BAS ET LUXEMBOURG. [IDENTIFICATION OF THE PREY CONTAINED IN THE PELLETS OF BIRDS OF PREY IN FRANCE, BELGIUM, THE NETHERLANDS AND LUXEMBOURG.] *Publ. Natuurhist. Genoot. Limburg* 22(1-4): 3-25, illus. 1972. [From Biol. Abstr. 56(1), 1973. In French.] *WR 150: 92*
[Mus. Natl. Hist. Nat., Brunoy, France.]

Sprunt, Alexander IV, William B. Robertson, Jr., Sergej Postupalsky, Richard J. Hensel, C. Eugene Knoder, and Frank J. Ligas. COMPARATIVE PRODUCTIVITY OF SIX BALD EAGLE POPULATIONS. *Trans. N. Am. Wildl. Nat. Resour. Conf.* 38: 96-106, 1 fig. 1973. *WR 150: 92*
[Natl. Audubon Soc., Tavernier, Fla.] *"Haliaeetus leucocephalus."*

BLACKBIRDS, STARLINGS, CROWS

Alcock, John. CUES USED IN SEARCHING FOR FOOD BY RED-WINGED BLACKBIRDS *(AGELAIUS PHOENICEUS). Behaviour* 46(1-2): 174-188, 1 fig. 1973. In English with German summ. *WR 150: 92*
[Ariz. State Univ., Tempe.] *"Agelaius phoeniceus."*

Balda, Russell P., and Gary C. Bateman. UNUSUAL MOBBING BEHAVIOR BY INCUBATING PIÑON JAYS. *Condor* 75(2): 251-252. Summer 1973. *WR 150: 92*
[Northern Ariz. Univ., Flagstaff.] *"Gymnorhinus cyanocephalus."*--Courtesy/ Paul A. Stewart.

Cutright, Noel Jefferson. SUMMER AND FALL FLOCKING AND ROOSTING ACTIVITIES OF THE RED-WINGED BLACKBIRD IN CENTRAL NEW YORK. *Ph.D. thesis, Cornell Univ.* 163 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 33(12), 1973.] *WR 150: 92*

Gotie, Robert F., and James C. Kroll. GROWTH RATE AND ONTOGENY OF THERMOREGULATION IN NESTLING GREAT-TAILED GRACKLES, *CASSIDIX MEXICANUS PROSOPIDICOLA* (ICTERIDAE). *Condor* 75(2): 190-199, 9 figs. Summer 1973. *WR 150: 92*
[N.Y. State Dept. Environ. Conserv., 317 Washington St., Watertown.] Thermolytic mechanisms developed at about the sixth day; whereas mechanisms related to thermogenesis developed at about the tenth day. Nestlings exhibited heat stress at 40° C. Mechanisms for heat retention are less important than thermolytic mechanisms at air temperatures which occur during the nesting season.--From summ. Courtesy/ Paul A. Stewart.

Jones, Thony B., and Alan C. Kamil. TOOL-MAKING AND TOOL-USING IN THE NORTHERN BLUE JAY. *Science* 180(4090): 1076-1077, 2 figs. 8 June 1973. *WR 150: 92*
[Univ. Mass., Amherst.] Abstract: Laboratory-raised Northern blue jays *(Cyanocitta cristata)* have been observed tearing pieces from pages of newspaper and utilizing them as tools to rake in food pellets which were otherwise out of reach. The frequency of this behavior was dependent upon the motivational state of the jay and the presence of food pellets.

Kerlan, Joel Thomas. THE TESTICULAR CYCLE IN ADULT CAPTIVE RED-WINGED BLACKBIRDS *(AGELAIUS PHOENICEUS)*: A COMPARISON OF CHANGES IN TESTIS SIZE, TESTOSTERONE AND 20-HYDROXYPROGESTIN FORMATION, PLASMA TESTOSTERONE CONCENTRATION, AND MOUTH LINING COLOR. *Ph.D. thesis, Univ. Mich.* 101 p. 1972. [From Diss. Abstr. Int. B Sci. Eng. 34(1), 1973.] *WR 150: 92*

BLACKBIRDS, STARLINGS, CROWS--Continued

Kiff, Lloyd F. NEW HOST RECORDS FOR THE BRONZED COWBIRD. *Wilson Bull.* 85 (2): 240-242. June 1973. *WR 150: 93*
[Western Foundation Vertebr. Zool., 1100 Glendon Ave., Los Angeles, Calif.] Gives observations on three host species of *Molothrus aeneus.*--Courtesy/ Paul A. Stewart.

Korodi Gal, Ioan. BEITRAEGE ZUR KENNTNIS DER BRUTBIOLOGIE UND BRUTNAHRUNG DER EICHELHAEHER *(GARRULUS GLANDARIUS* L.). [ON BREEDING BIOLOGY AND FOOD OF THE YOUNG OF THE JAY *(GARRULUS GLANDARIUS* L.).] *Trav. Mus. Hist. Nat."Grigore Antipa"* 12: 355-383, illus. 1972. [From Biol. Abstr. 55(12), 1973. In German with French, Romanian and Russian summ.] *WR 150: 93*
[Univ. Babes-Bolyai, Cluj, Romania.]

Laskey, Amelia R. ALBINISM IN A POPULATION OF BLUE JAYS. *Auk* 90(3): 685. July 1973. *WR 150: 93*
[1521 Graybar Lane, Nashville, Tenn.] Reports of repeated cases of albinism in a population of *Cyanocitta cristata.*--Courtesy/ Paul A. Stewart.

Osmolovskaya, V. I. [FEEDING HABITS OF ROOKS *(CORVUS FRUGILEGUS* L.) AND THEIR ECOLOGICAL PLASTICITY. (METHODS OF COLLECTING AND TREATING MATERIALS.).] *Byull. Mosk. O-va. Ispyt. Prir. Otd. Biol.* 77(4): 75-85, illus. 1972. [From Biol. Abstr. 55(12), 1973. In Russian with English summ.] *WR 150: 93*

Robertson, Raleigh J. OPTIMAL NICHE SPACE OF THE RED-WINGED BLACKBIRD. III. GROWTH RATE AND FOOD OF NESTLINGS IN MARSH AND UPLAND HABITAT. *Wilson Bull.* 85 (2): 209-222, 3 figs. June 1973. *WR 150: 93*
[Queens Univ., Kingston, Ontario, Canada.] Growth and survival rates of *Agelaius phoeniceus* were the same in marsh and upland habitats.--Courtesy/ Paul A. Stewart.

Schwarze, E. MAGPIES, *PICA PICA*, SIT ON SHEEP. *Ornithol. Mitt.* 24(3): 54. 1972. [From J. Mammal. 54(1, suppl.), 1973.] *WR 150: 93*

Stewart, Paul A. ADJUSTMENTS OF BLACKBIRDS AND STARLINGS TO SHOT INJURIES. *Chat* 36(4): 110-111. Dec. 1972. *WR 150: 93*
[Agric. Res. Serv., Oxford, N.C.]

Temple, Stanley Albert. ENDOCRINE ASPECTS OF THE ANNUAL REPRODUCTIVE CYCLE IN THE STARLING *(STURNUS VULGARIS). Ph.D. thesis, Cornell Univ.* 97 p. 1973. [From Diss. Abstr. Int. B Sci. Eng. 34(3), 1973.] *WR 150: 93*

OTHER BIRDS

Adkisson, Curtis Samuel. AN ANALYSIS OF MORPHOLOGICAL AND VOCAL GEOGRAPHIC VARIATION IN NORTH AMERICAN PINE GROSBEAKS, *PINICOLA ENUCLEATOR* (AVES). *Ph.D. thesis, Univ. Mich.* 139 p. 1972. [From Diss. Abstr. Int. B Sci. Eng. 34(4), 1973.] *WR 150: 93*

Crossin, Richard S., and Charles A. Ely. A NEW RACE OF SUMICHRAST'S WREN FROM CHIAPAS, MEXICO. *Condor* 75(2): 136-139 + 1 pl. Summer 1973. *WR 150: 93*
[Neotropical Ornithological Foundation, 1719 N. Huachuca, Tucson, Ariz.] *"Hylorchilus sumichrasti navai."*--Courtesy/ Paul A. Stewart.

Gill, Frank B., F. J. Stokes, and C. Stokes. CONTACT ZONES AND HYBRIDIZATION IN THE JAMAICAN HUMMINGBIRD, *TROCHILUS POLYTMUS* (L.). *Condor* 75(2): 170-176, 5 figs. Summer 1973. *WR 150: 93*
[Acad. Nat. Sci., Philadelphia, Pa.] Courtesy/ Paul A. Stewart.

Gray, David B. WHINCHATS ON A DISUSED RAILWAY. *Bird Study* 20(1): 80-82, 1 fig. Mar. 1973. *WR 150: 93*
[2 Schaw Ave., Drongan by Ayr, Ayrshire, Scotland.] *"Saxicola rubetra."*

OTHER BIRDS--Continued

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537-264 O - 74 - 7

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AUTHOR INDEX

	Page		Page
Abdulali, H.	70	Altmann, D.	47
Abram, J. B.	41	Amiryan, A. A.	91
Acharjyo, L. N.	46	Ammann, A. P.	54
Achaval, F.	22	Anderson, D. W.	89
Adams, C. E.	33	Anderson, J. R.	57
Adams, N. H.	57	Anderson, W. L.	77
Adkisson, C. S.	93	Ando, H.	72
Adler, K.	102	Andrews, R. V.	45
Aguayo L., A.	57	Ansotegui, R. P.	47
Ainley, D. G.	74	Ant, H.	90
Airapet'yants, E. Sh.	6,21	Applegate, J. E.	54
Akkermans, L. M. A.	7	Araya, B.	71
Alcock, J.	92	Arbeit, W. R.	59
Aldridge, R. D.	95	Ariagno, D.	71
Aleeva, L. V.	24	Armentrout, D.	95
Ali, A.	100	Arrieta, A.	71
Aliev, F. F.	42	Arslan, M.	95
Allen, D. L.	46	Ash, L. R.	27
Allion, Y.	14	Aumees, L. E.	87
Allo, A. A.	53	Baenninger, L. P.	27
Allred, J. N.	75	Bailey, T. N.	46
Almaca, C.	27	Bakeev, N. N.	43
Almasan, H.	46	Baker, M. F.	30
Altig, R.	97	Baker, R. H.	5

	Page
Baker, R. J.	27
Bakke, T. A.	87
Balasingam, E.	95
Balat, F.	66
Balda, R. P.	65,92
Baldwin, D. M.	26
Baldwin, H. A.	12
Baleishis, R. M.	47
Ballard, W. B.	64
Balph, D. F.	39
Bandy, P. J.	56
Bang, P.	27
Bannikov, A. G.	47
Barndorff-Nielsen, O.	12
Barnes, V. G., Jr.	28
Barr, R. E.	38
Barron, J. C.	54
Bateman, G. C.	92
Bates, B. H., Jr.	85
Bauer, E.	86
Baumgardt, B. R.	54
Beals, E. W.	71
Bear, G. D.	47
Beaty, D. W.	12
Beebee, T. J. C.	95
Beg, M. A.	39
Bell, E. F.	54
Belopol'skii, L. O.	87,90
Belova, V. T.	95
Belton, W.	85
Ben'kovskii, L. M.	43
Bennett, B. M.	95
Berard, E.	12
Bercken, J. Van Den	7
Berger, D. D.	91
Bergman, R. D.	81
Bergman, W. P.	60
Berndt, R.	66
Berthold, P.	70
Berven, K. A.	98
Berzin, A. A.	57
Best, T. L.	31
Beumer, R. J.	20
Beverley-Burton, M.	81
Bezzel, E.	81
Bhat, H. R.	21
Bhatia, B. B.	46
Biadi, F.	78
Bindra, O. S.	28
Binford, L. C.	64
Birch, W. R.	59
Birkan, M. G.	78
Bisaillon, A.	16
Black, C. P.	72
Black, H. C.	37
Black, J. H.	95
Blagoveshtchensky, D. I.	19
Blair, W. F.	96
Blaisdell, J. P.	4
Blankespoor, H. D.	21
Blaustein, A. R.	28
Blazhis, A. S.	47
Bluzma, P. P.	47
Boag, D. A.	79
Bobek, B.	47
Bock, W. J.	65
Boctor, F. N.	76
Bogdanov, O. P.	96
Bohlen, H. D.	88
Boikov, V. N.	28
Boikova, F. N.	28
Boize, B. J.	36
Boldenkov, S. V.	25
Bolen, E. G.	81,83
Bonadonna, T.	47
Borchelt, P. L.	77
Borgarneko, L. F.	78
Bornman, C. H.	50
Bosse, M. M.	21
Botkin, D. B.	87
Bowen, D. E.	64
Bowers, J. H.	28
Bowers, J. R.	30
Bowman, G. A.	2
Bowman, M. C.	7
Box, H. O.	7
Brackbill, H.	66
Brackbill, M.	86
Bradley, W. G.	28,35,37
Brander, R.	28,80
Brandon, W.	62
Brauer, R. W.	60
Braun, C. E.	79
Breidenstein, C. P.	75
Breyen, L. J.	28
Brisbin, I. L., Jr.	77
Britton, P. L.	65
Brodie, E. D., Jr.	96
Broekhuizen, S.	25
Brokx, P. A. J.	54
Bromlei, F. G.	42
Brown, J. H.	28
Brown, L. H.	90
Brown, L. N.	30
Brown, R. J.	62
Brown, V.	71
Brtek, L.	29
Bruce, J. A.	66
Bryan, R. B.	5
Bryden, M. M.	57
Bubenik, G. A.	47
Buckner, C. H.	16
Budd, G. M.	57
Buechner, H. K.	48
Bugbee, N.	16
Bujalska, G.	29
Bulatova, N. Sh.	94
Bullock, B. C.	63
Bullock, T. H.	57
Bulstrode, C. J. K.	83
Burbidge, A. A.	5
Burkholder, G. L.	96

	Page
Burleigh, T. D.	88
Burns, J. J.	57
Burt, DeV. E.	6
Bury, R. L.	6
Bush, A. O.	85
Buskirk, W. H.	66
Buss, I. O.	84
Buzzell, J.	71
Bychkov, V. A.	57
Cade, T. J.	90
Cain, B. W.	81
Caldwell, D. K.	58
Caldwell, M. C.	58
Calef, G. W.	96
Cameron, D. B.	58
Campbell, A. C.	5
Campbell, H.	77
Capel, R. E.	47
Carley, J. G.	11
Carlson, H. C.	78
Carlsson, U. T.	71
Carpentier-Le Sech, J.	9
Catchpole, C. K.	67
Catlett, V. R.	2
Causey, M. K.	56
Chamberlain, E.	2
Chambers, P. L.	90
Chaplin, R. E.	47
Chapman, B. R.	76
Chevtchenko, L. S.	8
Chew, R. M.	32
Cheylan, G.	90
Child, G.	48
Choate, J. R.	30
Christensen, H. A.	20
Chu, E. W.	44
Church, J.	43
Church, R.	43
Clancey, P. A.	71
Clark, D. R., Jr.	96
Clark, P. H.	7
Clark, R. N.	13
Clarke, R.	58
Claussen, D. L.	96
Coetzee, C. G.	17
Cole, M. M.	7
Coleman, P. H.	76
Coman, B. J.	45
Connolly, G. E.	53,57
Cooke, F.	84
Cooper, C. L.	76
Coppinger, R. P.	45
Corbet, G. B.	17
Corbett, E. S.	83
Cormack, R. M.	88
Cote, C. E.	48
Coulter, M. C.	88
Coultrip, R. L.	19
Courtney, C. H.	88,89
Cowan, R. L.	54
Craighead, F. C., Jr.	42,48
Craighead, J. J.	42,48
Crawford, J. E.	6
Crawley, M. C.	58
Crossin, R. S.	5,93
Croteau, C.	12
Cruce, M.	96
Cupal, J. J.	53
Cushwa, C. T.	13
Cutright, N. J.	92
Cyprich, D.	39
Dachy, P.	63
Damalas, A. P.	8
D'Amico, K.	92
Daniel, M. J.	38
Danilov, P. I.	41,43
Da Silva, S. N.	48
Dasmann, R. F.	3
Daugherty, H. E.	3
Davey, C.	27
Davis, D. E.	39
Davis, F.	54
Davis, J. A.	78
Davis, J. G.	48
Davis, J. W.	54
Davis, R. K.	14
Davletshina, A. G.	34
Davydov, A. F.	88
Davydov, G. S.	20
Dawson, N. J.	38
Dawson, W. W.	58
Dczieciolowski, R.	48
DeBlase, A. F.	21
Decker, E.	13
De Kock, L. L.	29
Del Carlo, D. G.	61
Delmee, E.	63
DeLong, R. L.	58
Denison, D. M.	60
Denney, R. N.	15
Deppe, H.-J.	90
Derrickson, S. R.	81
Deschanel, J. P.	25
de Villa, J. G.	41
Diamond, A. W.	65,88
Diamond, J. M.	71
Dickerman, R. W.	85
Diesselhorst, G.	67
Dieterich, R. A.	29,62
Dietz, C. L.	21
Digueres, P. Des	4
Dille, G. G.	62
Dinesman, L. G.	39
Dixon, J. R.	102
Dmitriev, P. P.	29
Dobosch, D.	76
Dobroruka, L. J.	48
Dodge, W. E.	12
Dolbeer, R. A.	25
Dolbik, M. S.	70
Dol'nik, T. V.	65
Dolzan, J.	53
Dontchev, St.	79
Dormer, K. J.	61

Page

Dourdine, A. D. 78
Douthitt, T. C. 16
Drescher, H.-E. 41
Drescher, S. 41
Drescher-Kaden, U. 25,48
Driscoll, R. S. 55
Dubois, P. 25
Duellman, W. E. 97
Duffin, K. 67
Duffy, McF. 85
Duncan, R. A. 85
Dunker, H. 32
Dunn, E. K. 88,89
Dutra, F. R. 22
Dux, J. 97
Dwyer, T. J. 81
Dyer, E. 71
Eabry, S. 56
Ebedes, H. 19
Eckroade, R. J. 20
Edwards, E. P. 71
Efford, I. E. 97
Eiberle, K. 46,48
Eisele, T. T. 81
Eisele, W. 25
Eisenberg, J. F. 16
Eisfeld, D. 25
Eleazer, T. H. 76
Elliott, H. F. I. 3
Ellis, C. J. 77
Ellis, Le G. C. 39
Ellison, N. F. 48
Eltringham, S. K. 48
Ely, C. A. 93
Emel'yanov, P. F. 31
Emmons, R. W. 19
Engels, H. 17
Erdakov, L. N. 29
Erhardova-Kotrla, B. 55
Erickson, A. W. 5,62
Erickson, E. C. 14
Erkinaro, E. 29,90
Erlinge, S. 44
Ermakov, E. N. 16
Erskine, A. J. 81
Ervin, S. 14
Esilevskaya, M. A. 65
Faber, R. A. 8
Fabri, K. E. 16
Fabricius, E. 83
Fachbach, G. 97
Fadat, C. 85
Fain, A. 21
Fairley, J. S. 17
Fall, B. A. 72
Falls, J. B. 40,69
Farrar, J. 81
Farrell, R. K. 42
Fay, L. D. 57
Feddema, C. 55
Fellenberg, W. O. 97

Page

Fenton, M. B. 21
Ferianc, O. 81
Ferkovich, P. E. 77
Fernández Baca A., S. 49
Fiala, V. 82
Ficken, M. S. 67
Ficken, R. W. 67
Fields, B. L. 30
Fievez, L. 25
Fitzpatrick, L. C. 97
Fjetland, C. A. 84
Flake, L. D. 29
Flegg, J. J. M. 85
Fleharty, E. D. 30
Fleming, T. H. 18
Flickinger, E. L. 82
Flindt, R. 97
Flint, V. E. 78
Flook, D. R. 43
Fons, R. 22
Fooden, J. 19
Forbes, J. E. 75
Fordham, R. A. 88
Formosov, A. N. 15
Forsyth, D. J. 39
Fortman, J. 97
Fougeyrollas, C.-A. 45
Fowler, R. K. 6
Fox, M. W. 45
Fraguglione, D. 25
Frame, G. W. 64
Frank, R. 58
Franks, E. C. 8
Frantz, S. C. 30
Frazer, J. F. D. 58
Freer, V. M. 91
Frehn, J. L. 39
Frischknecht, N. C. 30
Froiland, O. 44,97
Fry, C. H. 94
Frye, F. L. 22
Fullagar, P. J. 27
Furman, D. P. 20
Gabrachanski, P. 8,79
Gaffney, F. G. 97
Gafurov, A. K. 20
Gaisler, J. 22
Gal, I. K. 64
Galaka, V. A. 25
Gallup, G. G., Jr. 97
Gambaryan, P. O. 30
Gard, G. 11
Gardner, A. L. 62
Gargett, V. 91
Gasanova, Z. R. 94
Gaskin, D. E. 58
Gastellu, J. 25
Gatten, R. E., Jr. 97
Gavlyuk, E. V. 67
Gavrine, V. F. 82
Geilikman, B. O. 91

	Page
Geller, M. Kh.	49
Gentry, J. B.	36
Gentry, R. L.	59
Gerell, R.	44
Gergilevich, N. M.	35
Gersdorf, E.	42
Getz, L. L.	32
Gian, J.	42
Giban, J.	8
Gibson, L. W.	84
Giger, R. D.	22
Gilbert, R. O.	33
Gileva, E. A.	34
Gill, F. B.	67,93
Gill, H. B.	72
Gill, J. D.	14
Gilmartin, W. G.	58
Gilmer, D. S.	81
Gindre, R.	14
Gjestson, D. L.	54
Glover, F. A.	13
Glue, D. E.	85
Gochfeld, M.	70,88
Gold, A.	16
Golder, F.	97
Golet, F. C.	14
Gol'tsev, V. N.	59
Gol'tsman, M. E.	16
Goodin, J. R.	4
Goodwin, H. A.	6
Gopalakrishna, A.	22
Gorman, G. C.	98
Goryainova, G. P.	87
Gosling, L. M.	49
Goss-Custard, J. D.	67
Gotie, R. F.	92
Graf, R. L.	13
Grakov, N. N.	15
Granier, I.	76
Granville, A.	25
Gray, D. B.	93
Gray, R. P.	78
Green, R. H.	11
Greij, E. D.	82
Gress, F.	89
Grimm, L.	25
Gropp, J.	77
Groves, D. L.	13
Groves, E.	45
Grubant, V. N.	98
Grubb, J. C.	98
Gruenberg, W.	50
Guerrero, R. D. III	19
Guillet, F.	98
Gulland, J. A.	59
Gullion, G. W.	79
Gunnell, F.	15
Gwinner, E.	70
Haaften, Y. L. Van	59
Haapanen, A.	82,84
Haarakangas, H.	30
Haas, G. E.	20
Haberman, R. L.	2
Hadley, N. F.	53
Hadow, H. H.	70
Hagstrom, T.	98
Haines, H.	18
Haislip, T. W., Jr.	72
Hall, N. R.	58
Halla, B. F.	85
Halling, H. W.	30
Hamelin, J.	14
Hamerstrom, F.	91
Hammer, D. A.	14
Hammit, H. C.	6
Hammond, D. D.	60
Hammond, J. A.	45
Handley, C. O., Jr.	18
Hanke, S. H.	14
Hanks, J.	63
Hansen, R. M.	25
Hanson, R. P.	20
Hansson, I.	44
Hansson, L.	17,30
Harbo, S. J., Jr.	57
Harling, J.	30
Harmeson, J. C.	70
Harrell, J. S.	76
Harris, B. K.	77
Harth, M. S.	80
Harvey, G. W.	61
Harwell, W. F.	54
Haucke, H. H.	86
Havenhill, R. M.	7
Havet, P.	8
Hays, H.	89
Hazlett, B. A.	36
Healy, W. M.	14
Heath, J. E.	100
Heaton, M. B.	80
Hedlund, J. D.	33
Heerden, J. A. H van	52
Heikura, K.	24
Heinsohn, G. E.	59
Heisinger, J. F.	30
Helm, J. D. III	30
Helminen, M.	84
Hemmer, H.	97
Hemsley, R. V.	78
Hendee, J. C.	13
Hendersen, B. E.	11
Henderson, R. W.	98
Henny, C. J.	9
Henry, V. C.	49
Hensel, R. J.	92
Henshaw, R. E.	22
Hepburn, C. P.	48
Herald, E. S.	59
Herman, L. M.	59
Herrenkohl, L. R.	7
Herrer, A.	20
Herrero, S.	43

	Page
Hesselton, W. T.	54
Hewson, R.	84
Heyer, W. R.	98
Heyland, O.	82
Hickey, J. J.	3,8
Hickman, G. C.	30
Hietakangas, H.	99
Hillman, C. N.	79
Hinds, D. S.	25
Hirose, K.	59
Hirth, D. H.	54
Hochbaum, G. S.	87
Hoddenbach, G. A.	103
Hoey, A.	59
Hoff, G. L.	54
Hoffman, D. M.	78
Hoffmeister, D. F.	18
Holden, A. V.	9
Holland, J. C.	41
Holm, E.	100
Holmes, R. T.	72
Hood, L. L.	9
Hook, O.	59
Hooven, E. F.	31
Hoover, K. D.	31
Hopem, R. M.	63
Hopkin, J. M.	102
Hotz, H.	98
Hovette, C.	9
Howard, R. R.	96
Howarth, S. T.	63
Howell, J. C.	67,91
Hubbard, R. L.	4
Hudec, K.	84
Hudson, B. W.	31
Huggett, A. S.	58
Hughes, D. A.	101
Hughes, G. R.	98
Hunkeler, P.	20
Hunt, R. A.	82
Huntley, B. J.	52,98
Hurtubia, J.	12
Ichihara, T.	59
Impekoven, M.	89
Inns, B.	18
Inuksi, T.	42
Ireland, P. H.	98
Irvine, B.	59
Ishida, K.	58
Ismatov, D.	39
Issakov, I. A.	82
Issel, C. J.	54
Ivacic, D. L.	80
Ivanova, N. L.	99
Ivanter, E. V.	31
Ivashin, M. V.	60
Jackson, J. F.	99
Jackson, L. W.	54
Jackson, W. W.	79
Jahn, P.	71
Jakobson, M. E.	38
Jalali, S.	95
Jancev, J. I.	22
Jansson, M. C.	5
Jaslove, S. W.	31
Jehl, J. R., Jr.	86,89
Jenssen, T. A.	99
Johnels, A. G.	59
Johnson, D. H.	86
Johnson, E.	64
Johnson, H. E.	57
Johnson, R. W.	86
Johnston, D. G.	62
Johnston, J. G., Jr.	76
Johnston, N. L.	62
Johnston, S. D.	42
Jones, C.	22
Jones, G. W.	47
Jones, T. B.	92
Jonkel, C. J.	50
Jordan, M. R.	60
Joubert, L.	25
Joyner, D. E.	82
Judin, B. S.	22
Kadosaki, M.	42
Kafarov, M. K.	31
Kalivodova, E.	86
Kaller Salas, A. V.	79
Kalshukhov, N. I.	31
Kamil, A. C.	92
Kanuscak, P.	72
Kapitonov, V. I.	31
Karnoukhova, N. G.	38
Karpukhin, I. P.	39
Kartman, L.	31
Karulin, B. E.	33
Kashkarov, D. Yu.	18
Kasuya, T.	60
Katzenmeier, Ph.	49
Kaufman, D. W.	39
Kavanau, J. L.	7,45
Kay, B. H.	11
Keahey, K. K.	57
Keep, M. E.	49
Keirans, J. E.	55
Kennedy, J. J.	13
Kennedy, M. E.	99
Kennedy, M. L.	31
Kepler, A. K.	94
Keppie, D. M.	79
Kerlan, J. T.	92
Kerr, J. D.	76
Keskpaik, Y.	89
Keve, A.	86
Khairullin, N. N.	38
Khajuria, H.	22
Khamdamova, T. U.	29,32
Khanmamedov, A. I.	94
Khorma, P.	89
Kiefer, M.	39
Kiel, W. H., Jr.	86
Kiff, L. F.	89,93

	Page
Kilham, L.	67
King, K. A.	82
King, T. S.	30
Kirkpatrick, R. L.	26
Kirpichev, S. P.	79
Kitchinski, A. A.	13
Kivisalu, E.	82
Klein, D. R.	13
Klein, H.	70
Klessig, L. L.	82
Klevezal', G. A.	79
Klimchenko, I. Z.	31
Kloek, G. P.	65
Knoder, C. E.	92
Kogay, V. M.	60
Kogon, C.	27
Komarek, E. V., Sr.	15
König, E.	49
Konstantinov, A. I.	6
Kooyman, G. L.	7,60
Koponen, S.	99
Koppel, S.	21
Korodi Gal, I.	93
Korotkov, Yu. M.	7
Kotrly, A.	55
Kouznietzov, B. A.	15
Kovalev, A. K.	19
Kovshar', A. F.	67
Krainev, E. D.	25
Krämer, A.	55
Kraus, M.	80
Krauss, W.	80
Krishnamurthy, K.	38
Krishnan, M.	18
Krishnaswami, A. K.	20
Krivosheev, V. G.	34
Kroll, J. C.	92,99
Kroodsma, D. E.	67
Kroon, C.	99
Kruse, A. D.	83
Krzanowski, A.	22
Kufeld, R. C.	55
Kulik, I. L.	18
Kumari, E.	73
Kupper, J. L.	62
Kupriyanov, A. G.	45
Kurkela, P.	49
Kuroda, N.	82
Kushlan, J. A.	86
Kutzer, E.	50
Kux, Z.	84
Kuyt, E.	50
Kuznetsov, V. I.	37
LaBastille, A.	6,86
Labisky, R. F.	80
Lachlan, C.	78
Lang, E. M.	16
Lang, J.	50
Langguth, A.	22
Lannom, J. R.	103
Lanyon, W. E.	94
Larkin, E. C.	40
Larsen, K. R.	99
Laskey, A. R.	93
Lavaur, E. de	9
Lavery, H. J.	82,83
Lazell, J. D., Jr.	99
Lea, A. L.	53
Leader, R. W.	42
Lebedeva, L. S.	47
Lee, A. K.	38
Lee, F. B.	83
Lee, G. G.	75
Lee, J. M., Jr.	40
LeFebvre, E. A.	66
Leftwich, B. H.	22
Legters, L. J.	19
Lehmann, H. D.	99
Le Louarn, H.	31
Lenker, D. K.	56
Lepp, D. L.	26
LeResche, R. E.	74
Levenko, B. A.	99
Leyhausen, P.	16
Licht, P.	98,99
Lieb, C. S.	96
Lieberman, G. A.	28
Ligas, F. J.	92
Linares, O. J.	23,32
Lincoln, G. A.	50
Lindzey, J. S.	13
Ling, H.	50
Littlefield, C. D.	72
Lobachev, V. S.	32
Lockner, F. R.	40
Lockyer, C.	60
Loehrl, H.	68
Loncke, D. J.	68
Longcore, J. R.	9
Longhurst, W. M.	53,57
Lord, R. D.	76
Louw, G. N.	100
Lucas, R. C.	13
Lueth, F. X.	55
Lumia, A. R.	50
Lutz, H.	10
Lutz-Ostertag, Y.	10
Lyalyushko, D. M.	100
Lyapunova, K. L.	36
Mac Cabe, R. A.	86
Maclean, G. S.	38
Madhavan, A.	22
Madkour, G.	22
Magee, W. T.	57
Mahajan, K. K.	18
Makeev, V. M.	103
Malygin, V. M.	33
Manganiello, T.	62
Mann, G. S.	28
Manton, M. L.	100
Mares, M. A.	30
Marinina, L. S.	32

	Page
Marshall, A. G.	3,23
Marshall, I. D.	11
Marshall, J. D., Jr.	19
Martens, J.	32,72
Marti, C. D.	91
Martin, D. J.	91
Martin, D. K.	77
Martin, E. M.	9
Martin, R. P.	20
Martin, W. E.	10
Martinet, L.	26
Martirosyan, B. A.	91
Mashkovskii, I. K.	24
Massey, C. I.	23
Mate, B. R.	44,60
Matschke, G. H.	49
Matskasi, I.	32
Mattern, U.	80
Matthews, W. H. III	6
Maturana C., R.	57
Maxwell, J. C.	50
May, T. A.	79
Mayfield, H. F.	74
Maynes, G. M.	63
McAllister, H. J.	50
McCaffery, K. R.	55
McCourt, K. H.	79
McCowan, D.	51
McDaniel, J. W.	89
McDonald, D. L.	81
McGinnis, S. M.	60
McGowan, J. D.	79
McIntosh, J. E. A.	63
McKell, C. M.	4
McLaury, E. L.	72
McManus, J. J.	31
McNamara, M. C.	40
McNeel, J.	78
Meade, T. G.	85
Mechler, J. L. III	55
Medica, P. A.	103
Medway, L.	5,23
Mehl, R.	23
Mekhtiev, G. I.	31
Melkumyan, L. S.	100
Menzel, E. W., Jr.	63
Mertens, R.	100
Meshkova, N. N.	16
Metter, D. E.	95
Metzgar, L. H.	32
Michanie, S. C.	76
Michener, D. R.	40
Michener, G. R.	40
Miller, B. E.	20
Miller, D. H.	32
Miller, D. P.	71
Miller, F. L.	50
Miller, H. W.	83
Miller, R. S.	83,87
Miller, S.	50
Milovanova, N. I.	87
Minton, C. D. T.	87
Minton, M. R.	100
Minton, S. A., Jr.	100,101
Mirza, M. R.	100
Mirza, Z. B.	50
Mirzobakhodurov, M.	76
Mitchell, B.	51
Mitchell, F.	14
Mitchell, W. R.	78
Mitskus, A. V.	47
Mocci Demartis, A.	74
Moffatt, H. H.	2
Monson, R. A.	45
Montgomery, G. G.	63,100
Montgomery, S. D.	40
Montlaur-Ferradou, P.	80
Moran, R. J.	51
More, T. A.	13
Moreau, R. E.	70
Moret, B.	26
Morrison, J. A.	63
Morrison, P. R.	29
Morse, D. H.	32
Morton, M. L.	65
Moskvitina, N. S.	19
Mothershead, C. L.	54
Mott, D. F.	75
Mottl, St.	79
Mount, R. H.	102
Moutafov, L.	8,79
Mueller, E.	68
Mueller, H. C.	91
Mueller-Dombois, D.	52
Mukhachev, A. D.	51
Mukhamadiev, S. A.	20
Mukherjee, R. N.	18
Mulhern, B. M.	9
Mullen, R. K.	32
Müller-Schwarze, C.	68
Müller-Schwarze, D.	68
Munday, B. L.	11
Mundy, K. R. D.	43
Muratov, E. A.	76
Murchison, A. E.	60
Murphy, W. F., Jr.	56
Murray, B. G., Jr.	67
Murray, K. F.	19
Musacchia, X. J.	38
Musick, J. A.	99
Myers, N.	63
Myllymäki, A.	17
Myrberget, S.	44
Myres, M. T.	75
Mysterud, I.	32,33
Nachtigall, P. E.	61
Nachtigall, W.	64
Naiden, P. E.	31
Naito, Y.	61
Nalbandov, A. V.	43
Nam, K.	18
Nankov, N.	8

Page

Nasibov, S. B. 46
Naumov, N. P. 16
Nechaev, V. A. 7
Neelakantan, K. K. 94
Neithammer, J. 32
Nekrasov, E. S. 40
Nesterov, V. 46
Newsome, A. E. 20
Newton, I. 10
Nicholls, D. G. 63
Nickerson, P. R. 10
Niethammer, J. 23
Nikitina, N. A. 33
Nishimura, S. 100
Nishiwaki, M. 61
Norberg, U. N. 23
Norris, D. W. 90
Norris, K. S. 61
Norris, M. L. 33
Northcott, T. H. 41
Northcutt, R. G. 100
Novakova, E. 10,26
Novikov, G. A. 65
Nowak, R. M. 27
Nowosad, R. F. 51
Nystrom, M. 89
Oakley, C. A. 53
Ochinskaya, E. I. 100
Oden, T. 10
Oelke, H. 89
O'Farrell, M. J. 23,33
O'Farrell, T. P. 33
Oganesyan, V. D. 30
O'Gara, B. W. 48
Oguro, N. 60,61
Oh, J. H. 53
O'Hare, P. J. 80
Ohmart, R. D. 68
Ojasti, J. 23
Oliver, M. M. 10
Olsen, D. E. 33
Olsen, R. W. 33
Olson, R. J. 33
O'Neill, E. J. 92
Oppenheimer, E. C. 41
Orbanyi, I. 17
O'Regan, W. G. 4
Orford, N. 94
Oring, L. W. 87
O'Riordan, C. E. 61
Orlov, V. N. 33
Osburn, B. I. 57
Osmolovskaya, V. I. 93
Østbye, E. 33
Ostwald, R. 34
Ovidio, J. 86
Owen, K. 36
Owens, R. A. 75
Ozmon, K. 77
Paasikallio, A. 17
Paasivirta, O. 82

Page

Pack, J. C. 14
Page, G. 91
Pagels, J. F. 23
Paliza, O. 58
Pandey, R. K. 47
Panksepp, J. 38
Panov, E. N. 94
Papadopol, A. 72
Papanyan, S. B. 34
Papp, J. L. 18
Parish, T. 51
Park, A. B. 12
Parker, G. R. 51
Parker, H. D., Jr. 55
Parker, J. C. 40
Parker, W. S. 101
Parkes, K. C. 94
Parks, E. 45
Parsons, R. E. 20
Paschal, J. E. 34
Patterson, M. A. 38
Patton, D. R. 12
Patton, J. C. 27
Patton, J. L. 34
Pavlenko, T. A. 34,36
Pavlinin, V. N. 40
Pavlov, B. M. 49,51
Payne, K. 61
Payne, R. 61
Pearson, D. J. 65
Pelikan, J. 22
Pelttari, A. 24
Pence, D. B. 20,87,89
Pentecost, E. D. 101
Pepper, R. L. 60
Perez, J. M. 58
Perez, M.-F. 80
Peters, C. R. 45
Petetin, M. 74
Petrache, O. 18
Petrosyan, E. A. 31
Petrov, B. 34
Petrov, P. 79
Petrova, I. A. 87
Pettit, J. R. 78
Phillips, J. S. 94
Phillis, W. 76
Pidduck, E. R. 40
Pienkowski, M. W. 87
Piérard, J. 16
Pilleri, G. 61
Pinkham, C. F. A. 34
Platz, A. L. 101
Platz, J. E. 101
Poelma, F. G. 26
Pointner, J. 51
Pokrovskii, A. V. 34,36
Polonik, N. I. 87
Poole, A. 89
Poole, T. B. 44
Popov, V. A. 26

	Page
Post, W.	68
Postupalsky, S.	92
Potter, D. R.	13
Potter, E. F.	68
Potts, R.	79
Pough, F. H.	101
Poulissar, A.	26
Poulter, T. C.	61
Powers, L. R.	68
Praderi, R.	61
Prakash, I.	34
Preston, D. J.	29
Prevett, J. P.	84
Prince, R. I. T.	5
Prior, E. T.	11
Prisyazhnyuk, N. P.	51
Prisyazhnyuk, V. E.	51
Pruitt, W. O., Jr.	19
Pryadko, E. I.	51
Pucak, G. J.	63
Pulich, W. M., Jr.	89
Pulich, W. M., Sr.	89
Putman, R. J.	83
Qazi, M. H.	95
Quevedo, F.	76
Quigley, R. J.	89
Radesater, T.	83
Radinsky, L.	44
Rae, B. B.	61
Raggi, L. G.	75
Rahm, U.	40
Rajecki, D. W.	68
Rajska, E.	29
Rakhmatulina, I. K.	23
Ramasivan, T.	38
Ramos, J.	7,45
Rana, B. D.	34
Rand, A. S.	100
Rao, A. T.	46
Rasmussen, G.	80
Ratner, S. C.	77
Rausch, R. L.	76
Rayburn, E. B.	56
Rayburn, S. B.	13
Ream, R. R.	13
Reeder, N. E.	2
Reichholf, J.	74
Reichman, O. J.	34
Rever, M.	83
Reydellet, M.	26
Rice, D. W.	62
Rice, L. Z.	35
Richard, J.-L.	51
Richard, P. J. D.	101
Richardson, J. H.	23
Richter, W. von	51
Ridgway, S. H.	57
Riedesel, M. L.	40
Risebrough, R. W.	88,89
Robbel, H.	48
Robel, D.	94
Robertson, R. J.	93
Robertson, W. B., Jr.	92
Robinette, D. L.	56
Rock, T. W.	46
Rogers, G. C.	23
Rogers, J. S.	101
Rohn, I.	29
Rood, J.	35
Rookstool, D. J.	31
Rose, C.	14
Rose, R.	42
Rosen, M. N.	92
Rothstein, S. I.	11,69
Rottman, J.	50
Roubal, Z.	26
Rouk, C. S.	23
Rowe-Rowe, D. T.	51,52
Rowntree, V. J.	16
Rubin, F. Ya.	70
Rubtsova, N. B.	100
Rucner, R.	64
Rudaeva, A. V.	98
Ruff, R. L.	48
Rukovskii, N. N.	45
Russell, E. M.	63
Rust, R. W.	35
Ryder, J. P.	84
Rykovskiy, A.	20
Rylander, M. K.	83
Safarov, Kh. M.	101
Safonov, V. G.	15
Sage, B. L.	74
Saint Girons, M.-C.	45,92
Saito, T.	72
Salanitro, S. K.	101
Saldanha, L.	103
Salmin, Yu. A.	52
Samkov, Yu. A.	42
Samosh, V. M.	35
Samuel, W. M.	26,56
Sandegren, F. E.	44
Sanderson, G. C.	43
Sanderson, H. R.	14
Sands, M.	45
Sauer, P. R.	56
Sauerwein, G.	77
Saure, L.	24
Savin, B. M.	21
Scanlon, P. F.	56
Schaeffer, G. C.	101
Schefels, W.	45
Schenkel, R.	52
Schenkel-Hulliger, L.	52
Schevill, W. E.	62
Schindler, U.	35
Schladweiler, P.	52
Schmajuk, N.	101
Schmid, F. C.	9
Schmidt, E.	18
Schmidt, R. S.	102
Schoepke, B. L.	57

537-264 O - 74 - 8

	Page
Schole, B. J.	13
Schricke, E.	80
Schroeder, J. P.	60
Schulz, D.	48
Schulz, V.	77
Schwarze, E.	93
Schweinsburg, R. E.	52
Scotcher, J. S. B.	52
Scott, I. M.	35
Scott, J. M.	72,89
Scudday, J. F.	102
Scura, E. D.	102
Seabloom, R. W.	33
Seegrist, D. W.	4
Segura, E. T.	101
Seidensticker, J. C. IV	46
Selander, R. K.	39
Semenov-Tian-Shanskii, C.	43
Semenov-Tyan-Shanskii, O.	35
Semizorova, I.	27
Severinghaus, C. W.	56
Seymour, R. S.	102
Shallenberger, R. J.	90
Shapovalov, S. I.	16
Sharipov, M.	69
Sharp, K.	18
Shchepotiev, N. V.	35
Shevchenko, V. I.	60
Shigei, M.	102
Shilov, I. A.	35
Shirai, K.	100
Shope, R. E.	35
Silcock, B. W.	6
Simmonds, R. C.	40
Simmons, G. A.	69
Simon, P.	63
Simpson, C. F.	11
Simpson, J. G.	58
Simpson, M. B., Jr.	73
Sims, H. P.	16
Sinha, A. A.	62
Siniff, D.	62
Siopes, T. D.	80
Sipos, G.	18
Sitko, M.	21
Sjogren, D. D.	13
Skaren, U.	74
Skeen, J. E.	38
Skinner, J. D.	52
Slack, R. D.	94
Sloan, N. F.	69
Smigel, B. W.	35
Smirnov, P. K.	26,35
Smirnov, V. S.	36
Smith, A. G.	15
Smith, A. W.	20
Smith, D. A.	39
Smith, F. R.	20
Smith, F. W.	83
Smith, I. D.	62
Smith, J. C.	36
Smith, J. L.	2
Smith, M. H.	36,39
Smith, N. J. H.	94
Smith, R. H.	12,13
Smith, S. L.	41
Smith, W. J.	41
Snow, B. K.	69
Snyder, F.	16
Sodergren, A.	11
Soikkeli, M.	84
Sokolov, B. V.	24
Sokur, I. T.	36
Solman, V. E. F.	2,75
Soper, J. D.	18
Soule, O. H.	5
Sowls, L. K.	52
Spackman, E. W.	38
Spatz, G.	52
Speake, D. W.	102
Spellerberg, I. F.	90
Spenik, M.	21
Spinage, C. A.	52
Spittler, H.	19
Sprunt, A. IV	92
Stahl, D.	46
Standfast, H. A.	11
Stankey, G. H.	13
Staples, P. P.	36
Stark, B.	36
Starkey, E. E.	83
Stebbins, L. L.	36
Stefanski, R. A.	69
Steiniger, F.	89
Stenmark, A.	26
Sterbetz, I.	77
Stevens, D. R.	52
Stewart, P. A.	93
Stewart, P. L.	77
Stewart, R. E.	86
Steyn, P.	65
Stiles, F. G.	65
Stoddart, D. M.	36
Stokes, C.	93
Stokes, F. J.	93
Stoll, R. J., Jr.	78
Stone, C. P.	75
Stone, W. B.	45
Strelkov, P. P.	24
Stresemann, E.	66
Stresemann, V.	66
Struhsaker, T. T.	19
Sturbaum, B. A.	102
Subkhonov, M.	76
Sudeikin, V. A.	36
Sugihara, C.	100
Sukhodol'skaya, N. K.	12
Sulgostowska, T.	85
Sullivan, J. O.	94
Sunquist, M. E.	63,100
Suomalainen, H. K.	84
Suomalainen, P.	24

	Page
Surmont, J.-J.	102
Suthers, B. J.	24
Suthers, R. A.	24
Svael'ev, V. D.	21
Swickard, M.	20
Syuzyumova, L. M.	36
Taber, R. D.	50
Tally, L. J.	77
Talman, T.	24
Tamisier, A.	83
Tanner, W. W.	102
Tarasoff, F. J.	16
Tarburton, M. K.	11
Tatchell, R. J.	76
Tatsuki, T.	100
Taylor, C. R.	16
Taylor, D. H.	102
Taylor, R. W.	102
Temmlova, B.	10
Temple, S. A.	93
Terman, C. R.	35,36
Terman, M. R.	36
Terrel, T. L.	56
Tessier, G. D.	50
Thiessen, D. D.	36
Thireau, M.	103
Thomas, D. C.	56
Thomas, J. W.	14
Thomas, S. P.	24
Thompson, E. F.	54
Thompson, J. A.	37
Thompson, M.	72
Thompson, M. P., Jr.	5
Thomson, A. G.	37
Thornton, K. R.	59
Tho-Yow-Pong	95
Threlfall, W.	20
Throckmorton, G.	103
Tiemann, G.	103
Tiews, J.	77
Tigner, J. R.	14
Tikhomirov, S. I.	36
Tinsley, R. C.	103
Todd, K. S., Jr.	26
Todd, R. L.	87
Toft, J. D. II	63
Tomlinson, R. E.	87
Toole, J. F.	63
Torcea, S.	18
Torres N., D.	57
Toth, D. M.	41
Tournut, J.	27,80
Trainer, D. O.	54,56
Trevethan, W. P.	62
Trittmann, K.	73
Trotignon, J.	74
Tsumura, K.	97
Tubbs, D. M.	56
Tuck, L. M.	87
Tugaev, D. G.	73
Tumanov, I. L.	43
Turner, F. B.	103
Turner, J. C., Jr.	52
Twibell, J. W.	37
Udvardy, M. D. F.	66
Ueckermann, E.	11,81
Ulfstrand, S.	11
Ullrey, D. E.	57
Ulmer, F. A.	41
Ulmer, M. J.	21
Ulrich, W.	52
Ultsch, G. R.	103
Ulvedal, F.	40
Uniyal, V.	38
Urbston, D. F.	56
Urry, R. L.	39
Usakov, V. A.	103
Uspenskyi, S. M.	13
Utschick, H.	74
Utter, J. M.	66
Vaisfel'd, M. A.	44
Valentincic, S.	53
Van Acken, D.	53
Vance, V. J.	103
Van De Graaff, K. M.	34,37
Vander Wall, S. B.	65
Van der Zalm, J. M.	7
Van Devender, T. R.	103
Vandevere, J. E.	44
Van Langen, R. G.	7
Van Pelt, R. W.	62
Van Riper, C. III	69
Van Tien, D.	41
van Zyl, J. H. M.	52,53
Vasil'ev, V. I.	73
Vedmederya, V. I.	98
Vedros, N. A.	62
Velek, J.	27
Verbeek, B.	103
Verschuren, J.	6
Vershinin, A. A.	44
Vershinina, T. A.	37
Vessey, S. H.	38
Vick, L. H.	37
Vieira, F. J.	3
Vilkitis, J. R.	53
Viscount of Arbuthnott	53
Vlasák, P.	24
Vlasov, V. V.	19
Voipio, P.	90
Volozheninov, N. N.	17
Von La Chevallerie, M.	53
von Studnitz, G.	53,62
Voronov, A. G.	37
Voth, E. H.	37
Vtorov, P. P.	103
Waiz, A.	50
Walin, T.	24
Wallmo, O. C.	55
Walter, H.	74
Walther, F. R.	53
Wang, L. C. H.	12,41

	Page
Ward, A. L.	53
Warren, P. I.	62
Watkins, L. C.	27
Watkins, W. A.	62
Watson, A.	80
Wearne, D.	98
Webb, R. G.	5
Weber, B. L.	45
Webster, J. D.	73,94
Weeks, R. W.	53
Weidhaas, D. E.	7
Weiner, J.	47
Weinmann, C. J.	57
Wells, D. R.	5,73
Wells, R. S.	59
Welton, D. E.	65
Wemmer, C. E.	63
Wenberg, G. M.	41
Werner, J. K.	104
Wertheim, R. F.	37
Weston, H. G., Jr.	71
Westrich, P.	70
White, F. H.	11
White, R. W. C.	47
Whitt, A. P.	16
Wickler, W.	69
Wiegert, R. C.	37
Wiens, J. A.	73
Wikan, S.	73
Wilde, D. De La R.	91
Wiley, R. W.	37
Wilkins, B. T.	14
Willemart, J. P.	80
Willey, C. H.	85
Williams, J. M.	38
Williams, L. E.	11,83
Williams, R. T.	27
Williams, S. L.	27
Williams, W. T.	40
Willson, M. F.	70
Wilson, J.	87
Wilson, S.	37
Wilson, W. O.	80
Winkel, W.	66
Winokur, R. M.	104
Winsor, T. F.	77
Wobeser, G.	46
Wolf, L. L.	65
Wolfe, M. L.	46
Wolk, K.	95
Wolman, A. A.	62
Wood, R. C.	104
Woodall, J. P.	35
Woodroofe, G. M.	11
Woolf, A.	57
Work, T. H.	76
Worthen, G. L.	95
Worthington, R. D.	104
Wright, B. A.	46
Wright, J. J.	60
Wright, R. E.	70
Wrigley, R. E.	41
Wurster-Hill, D. H.	17
Yahr, P. I.	36
Yalden, D. W.	17
Yamagishi, S.	74
Yi, H.	18
Yocom, C. F.	44
Yoshida, K.	59
Youatt, W. G.	57
Yousef, I. M.	37
Yousef, M. K.	28,35,37
Yudin, B. S.	19
Yukhov, V. L.	60
Zakirov, A.	18
Zen'kovich, N. S.	33
Zervanos, S. M.	53
Zharov, V. R.	41
Zhirnov, L. V.	53
Zielinski, J.	47
Zimin, V. B.	95
Zimmerman, D. A.	73
Zimmermann, W.	24
Zippelius, H.-M.	24
Zivkovic, S.	34
Zonov, G. B.	24
Zunino, F.	43
ZuRhein, G. M.	20
Zvorykin, V. N.	21
Zweifel, R. G.	104
Zylka, A.	104
Brown, P. E.	21

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